

AN ANALYSIS OF PRESCHOOL CLASSROOM SUPPORTS ON
CHILD LANGUAGE DEVELOPMENT

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ABSTRACT

**SHEENA BERRY: An Analysis of Preschool Classroom Supports on
Child Language Development
(Under the direction of Barbara H. Wasik)**

Studies investigating classroom structure promoting child opportunities and examining models of developmental processes within early childhood classrooms indicate that classroom environment for young children, particularly at-risk children, is a key factor in educational attainment and social skill development. In recent educational research, structural and process supports have been identified as critical components of high quality classrooms. The present study utilized data from the Even Start Classroom Literacy Interventions and Outcomes (CLIO) study (Judkins et al., 2008). This nationally randomized study on students from low-literacy, low-income families provided an opportunity for the current study to explore if structural and process supports within preschool classrooms significantly foster language growth for at-risk children, and whether child growth in social competency partially or fully explains this relationship.

Prior to data analysis, exploratory factor analysis (EFA) was conducted on observational data from the CLIO study to identify categories of classroom level supports to serve as the study's independent variables. The EFA yielded two classifications of structural supports-- access to literacy materials and classroom organization--and one type of process support-- teacher-child interactions and opportunities. Hierarchical linear modeling (HLM) (i.e., multi-level modeling) and ordinary least squares determined the predictive relationship of the three identified classroom supports on child language growth, as measured by students' change in performance on oral language and syntax and grammar understanding measures. For significant

associations between independent and dependent variables, a group of covariates were included in the analyses to control for potential effects that these observable variables may have on the predictive value of classroom level supports on language development. Mediation testing through use of HLM examined the extent students' change in social competency mediated the impact of classroom structural and process supports on child language growth. Multilevel structural equation modeling was considered for models that suggested the mediation variable influencing the independent and dependent variable relationship. Findings indicated that when accounting for child and classroom level covariates, only classroom organization significantly predicted change in child oral language in preschool. Child growth in their social competency did not demonstrate partial direct and indirect effects on the relationship between classroom organization and child oral language growth. Results from the present study shed light on the intricate nature of studying early childhood settings, and yield considerations for future empirical work on what components of a classroom are critical to yield strong learners and social beings.

In loving memory of “Omi” Anneliese Schnobl and in honor of “Granny” Dorothy Berry for being so proud of me becoming the first “Dr.” in our family.

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CHAPTER ONE: LITERATURE REVIEW

Classroom Environment as a Key Component for Educational Achievement

For almost two hundred years, theorists have considered the role of the early childhood classroom itself as a significant factor influencing opportunities for children to engage and learn. Philosophies inspired by Friedrich Froebel, John Dewey, Maria Montessori, and Loris Malaguzzi have influenced how early childhood programs around the world can structure their classrooms in order to maximize positive experiences in which students may engage. Theoretical contributions from influential developmental psychologists, including Urie Bronfenbrenner, Lev Vygotsky, and John Bowlby, have inspired researchers, program evaluators, and educators how to conceptualize the impact of processes within a child's environment on a child. More recently, researchers such as Margaret Burchinal, David Dickinson, Christopher Lonigan, Susan Neuman, and Robert Pianta, have studied the characteristics of classrooms to determine how they influence young children's social, emotional, and academic skills. In the following sections, the writings of these individuals as well as others will be reviewed to provide an overview of the influences of early childhood classrooms on children's development.

Classroom structure promotes opportunities. Friedrich Froebel, who established the first kindergarten in 1837, was a pioneer for early childhood education for children under the age of seven, and acknowledged the importance of architecture to provide young children the space to engage in self-directed and creative activities (Reutzel & Jones, 2013). Psychologist and education reformer John Dewey declared in his *My Pedagogic Creed* (Dewey, 1897) that early

education results from two primary processes: psychological (i.e., learning) and sociological (i.e., adjusting to society). He saw teachers' roles not as imposing knowledge upon children but guiding hands-on learning experiences – a situation that requires the classroom to be conducive to child interactions with teachers, classmates, and academic materials.

Another educational model that impacted the delivery of early child education was the Montessori Method, which became internationally known by 1911. The founder of this approach, Maria Montessori, shared a similar orientation with Froebel and Dewey, believing that classroom environments should have an open design so that materials and supports are available to students (Montessori, 1964). In the Montessori model, the learning environment is prepared to be orderly, open to exploration, supplied with learning materials, and visually pleasing to encourage positive reactions and interactions by the students (Torrence & Chattin-McNichols, 2013). Other early childhood education philosophies since the later 20th century period have also emphasized the importance of the physical environment as a stage for child exploration and interactions with teachers and peers, thus guiding children's learning and development (New & Kantor, 2013; Reutzler & Jones, 2013). Schools using Loris Malaguzzi's Reggio Emilia Approach are designed to have a large open space, use natural lighting, and non-industrial décor, allowing for children and teachers to easily maneuver and interact within their classroom. As appreciated in the Reggio Emilia model and other ECE models that highlight the importance of the classroom environment, "space" is considered to be children's "third teacher" (New & Kantor, 2013), with the physical environment functioning to provide opportunities to engage and foster children's learning.

Models of developmental processes within early childhood classrooms.

Developmental psychology theorists, including Urie Bronfenbrenner, Lev Vygotsky, and John

Bowlby, have been very influential in conceptualizing the processes occurring within the child (e.g., natural cognitive maturation) and between an individual and the classroom setting. Bronfenbrenner's bioecological model of development is often referenced to understand the reciprocal interactions that take place between the child and persons as well as objects in their environment (Bronfenbrenner & Ceci, 1994). This model accounts for a person's genetic predisposition and the proximal processes play an important role in enhancing children's psychological, behavioral, and social developmental outcomes. Proximal processes include adult-child, child-child, and solitary activities that may target various skills, such as reading, problem solving, play, and acquiring new knowledge. These proximal processes have the opportunity to positively influence and maximize child development if the environmental influences involved in child interactions and activities (e.g., people, objects, and symbols) are consistently available. In their model, Bronfenbrenner and Ceci (1994) also accounted for the "proportion of observed variance attributed to expressed genetic potential for developmental competence" (pp. 582). The quality of environment in which proximal processes occur allows for the child's genetic potential to be maximized (i.e., result in higher competency) or minimalized (i.e., result in lower competency). Therefore, quality of environment is a key factor in child developmental outcomes.

To take a closer look at the processes that take place within the classroom environment, we turn to the work of Lev Vygotsky. Similar to Bronfenbrenner, Vygotsky's cultural-historical approach (also known as sociocultural theory) acknowledges that human development is the result of the interplay of genetic factors with cultural development (Vygotsky, 1978; Bodrova & Leong, 2013). Cultural development includes human interactions and exposure to cultural artifacts that cultivates knowledge important in that particular culture and society in which an

individual is developing. As young children engage in social interactions with adults, such as teachers, children acquire literacy and language skills. These early literacy skills are very important cultural-specific skills that, through learning and teaching (including social interactions), allow children to be more independently integrated in their environment as well as promote higher level mental functioning.

Some skills cannot be attained until certain developmental maturation occurs, but learning through interactions help children develop independent skills and perform tasks with assistance. A child's *zone of proximal development* (ZPD) is the range between tasks that a child can do independently and dependently or with guidance; this range should be targeted by instruction (Vygotsky, 1978; Bodrova & Leong, 2013). An individual's ZPD changes as the child can attempt or conquer more difficult tasks with adult support or guidance. When the ZPD changes, a task that once required adult support is mastered by the child and now defines the lower limit of his or her ZPD. Teachers play a significant role in enhancing a child's ZPD because they can model mature skills, through teaching and social interactions, from which children learn and adapt as their own skills. Teachers scaffold children's learning by providing consistent and rich opportunities for children to practice and acquire their skills, during which teachers may provide direct assistance (i.e., explicit instruction) or minimal help (i.e., model, give prompts) for the child. Scaffolding helps children transition from assisted to independent learning, and is minimized when a teacher observes a child independently performing a skill goal.

John Bowlby's attachment theory (1969) viewed attachment as a behavioral system where the quality and consistency of interactions between child and caregiver result in a set of mental processes that become organized and engrained. These processes influence how a child

explores their environment and forms other relationships. Bowlby's theoretical approach, which emphasizes the connections between a child's environment (i.e., interactions) and child mental processes, resulted in attention to the teacher-child interactions (Sameroff, 1995). The concept, *literacy behavioral system*, has been proposed to explain how child interactions and transactions within their school environment results in literacy acquisition. Just as between a child and his or her mother, a child interacts with teachers and peers at school and internalizes various competencies (i.e., cognitive, language, visual perception, and emotional) (Sameroff, 1995). As a result of continued interactions and transactions between a child and the classroom environment (including teachers and peers), competencies such as language skills are strengthened, providing the foundation for literacy acquisition.

Adults, especially teachers, serve as role models for children and their development of early language, literacy and social skills. Adults model the use of oral and nonverbal language and reflect back to children their use of language and literacy, thus fostering language and literacy processes (e.g., attention, working memory, reasoning, self-regulation, and communication skills) that are pertinent to overall literacy development (Pianta, 2006). Another function of child-adult interactions is to provide instructional (Foorman & Torgesen, 2001), intentional (Pianta, 2006) teaching opportunities to the child. Regardless of the content taught, the child is exposed to the adult's interpersonal, communicative skills. In the process of exposing a child to academic instruction and social interactions, teachers scaffold social skills (e.g., attending to others, turn-taking when speaking) and academic skills that ultimately promote early literacy growth.

In addition to developmental theories supporting the importance of the early childhood classroom physical environment, instructional interactions, and other teacher-child interactions

as influential factors in child development, accumulated empirical evidence also acknowledges these factors as key in providing children the desired experiences they need during their prekindergarten schooling. In the following section, results of recent research that has more clearly defined the components of high quality ECE classrooms is presented.

Components of High Quality Classrooms

The importance of classroom environments has long been a topic of discussion for over 100 years. It was not until the last few decades that the classroom environment has been researched as a potentially significant factor in improving the literacy and language skills of children from families with limited education and economic resources, minority families, immigrant families, and families with low literacy skills (Hart & Risley, 1995; Wasik & Bond, 2001; Campbell, Ramey, Pungello, Sparling, & Miller-Johnson, 2002; Howes, Burchinal, Pianta, Bryant, Early, & Barbarin, 2008). The learning environment can provide an opportunity to compensate for child and family vulnerability factors and promote positive language and literacy skills through a supportive learning environment, instructional activities, and positive teacher-student relationships (Peisner-Feinberg et al., 2001; Wasik & Bond, 2001; Palmero, Hanish, Martin, Fabes, & Reiser, 2007; Burchinal et al., 2008).

Structural and process quality in preschool classrooms. Recent literature has identified *structural quality* and *process quality* as two overarching components that are essential to preschool classrooms in order to observe academic and social-emotional outcomes, findings that also hold for disadvantaged populations (Espinosa, 2002; Whitaker & Pianta, 2012; Yoshikawa et al., 2013). Structural quality is characterized by *structural supports* within a classroom as well as teacher-level characteristics, which typically include classroom size, classroom organization, teacher qualifications, and program curriculum. The curriculum that a

preschool program adopts typically serves as a guide for how teachers should organize their classrooms. Teacher qualifications may also impact teachers' competency to design a classroom setting to match their students' needs.

By having high structural quality, a preschool classroom is better positioned to promote high process quality (Yoshikawa et al., 2013). Process quality is defined by classroom *process supports*, which capture the quality of teacher-child interactions during explicit teaching activities and other activities, and level of emotional and motivational support provided by the teacher to increase their students' learning and engagement in classroom activities (Espinosa, 2002; Yoshikawa et al., 2013). It is insufficient, however, to focus on one kind of classroom support, namely structural characteristics without taking into account process characteristics when working to create an overall high quality educational and developmental environment (Whitaker & Pianta, 2012).

Structural supports. Classroom structural supports include features of quality that can be altered or enhanced by changing the physical characteristics of the classroom (e.g., space, materials) or teacher standards (i.e., teacher requirements, professional development requirements) that indirectly impact the composition of the classroom environment (Espinosa, 2002; Howes et al., 2008; Yoshikawa et al., 2013). The most commonly examined structural supports will be reviewed here: (a) organization and accessibility to literacy resources, (b) teacher credentials, and (c) professional development.

The most obvious structural support in a preschool classroom is the physical layout. In regards to early literacy development, it is important for literacy resources, such as books and other materials, to be well organized and easily accessible by students (Pianta & Hamre, 2009). Not only do organized classrooms promote literacy development, but organized classrooms can

promote other academic and social-emotional skills. An organized classroom allows for efficient behavioral management and provides children with a routine, structured place where they can be active, learning participants (Pianta & Hamre, 2009).

Children engage with literacy materials if such resources are available, thus increasing the amount of literacy-based activities children independently seek out (Neuman & Roskos, 1997; Wasik & Bond, 2001). Wasik and Bond (2001) found that the number of literacy resources (e.g., books, book related props) throughout activities in preschool intervention programs serving children from low-income communities was positively correlated with increased literacy behaviors during free-time and better vocabulary outcomes compared to children with fewer opportunities to engage in literacy materials.

Previous research has yielded conflicting results regarding teacher education and qualification as an important predictor of teacher preparation in providing highly structured and interactive classrooms (Early et al., 2007; Mims et al., 2008; Barnett & Frede, 2011). Nevertheless, more effective early childhood education programs have been found to have more highly qualified, high salary teachers compared to other programs (Barnett, 2003). Although higher education, teacher credentials, and average to high compensation may have strong effects on child outcomes, these teacher level variables are not likely to yield significant child outcomes throughout the preschool years without the presence of other classroom supports, such as additional structural supports and process supports (i.e., quality teacher-child interactions) (Yoshikawa et al., 2013).

Because the data on teacher education are inconclusive as a significant factor in positive child outcomes, it is reasonable to emphasize actions can be taken within the classroom to structure environments that are conducive to learning and developing positive relationships.

Some research has demonstrated that professional development for teachers is a way of providing information and strategies for changing the classroom environment in ways that can enhance children's development. For example, teachers who were provided in-service training that included learning literacy-based practices and viewing videos of modeled teacher-child conversations improved the frequency with which they offered small group activities compared to large group activities, provided more literacy resources throughout the room for children to explore, and created more structured lesson plans (Dickinson & Caswell, 2007). A caveat to this study as well as other studies is that there are no clear linkages between professional development opportunities (e.g., in-service training) and child outcomes. Future research is needed on larger samples of teachers and with children progress monitoring data to determine if teacher professional development is effective for improving the quality of teacher practices and associated child developmental outcomes.

For the structural supports of the classroom to positively influence student outcomes, teachers must also provide high quality relational and instructional interactions to enhance the students' experiences within the classroom (Guo, Justice, Kaderavek, & McGinty, 2012; Yoshikawa et al., 2013). Teachers play a vital role in ensuring that they provide high quality process supports during their interactions with students, which is indicated in research to promote child development.

Process supports. Early childhood education teachers can impact children's social and academic outcomes (e.g., language and literacy) not only by enhancing classroom organization and resources, but also through teacher-child interactions (Howes et al., 2008; Mashburn et al., 2008; Curby et al., 2009). Within the classroom, two general types of interactions between teachers and students occur: instructional and relational. These interactions serve as formal and

informal learning experiences, respectively, which are important in promoting language, literacy, and social-emotional skills.

Instructional supports. Instructional support, or instructional interaction, refers to the teacher-child interactions that occur during explicit teaching and learning opportunities (Yoshikawa et al., 2013). Based on research supporting the evidence of high instructional quality on child outcomes, the National Association for the Education of Young Children (NAEYC) established new accreditation standards in 2006 to ensure that programs enhance their quality of literacy and learning content (McDonald, 2009). Effective ECE curricula share the common quality that they focus on explicit, specific, sequenced instructional activities that target certain components of language and literacy (Lonigan & Cunningham, 2013). Examples of instructional interactions include phonological awareness training, training on print-related activities, quality and quantity of book reading, and dialogic reading (Dickinson & Smith, 1994; Whitehurst & Lonigan, 1998; National Early Literacy Panel [NELP], 2008). The more opportunities that teachers provide students to express skills and scaffold new, more complex skills, the more children's students' cognitive and language growth is enhanced. Further, students see greater academic achievement if teachers provide activities designed to expand language skills and higher order thinking. Academic gains are also dependent on how communicative and responsive the teacher is to providing process-oriented feedback in a timely manner (Pianta & Hamre, 2009).

The NELP was organized in 2002 to synthesize early childhood education research on early literacy development to more efficiently inform educational policy and practice. Based on NELP's synthesis of the empirical evidence on classroom instructional practices (2008), there are several broad domains of classroom activities that are shown to yield improved early

language and literacy skills: (a) code-focused instruction, (b) shared reading, (c) dialogic reading, and (d) explicit instruction in small or individual group settings. While the NELP's stated mission is to promote early literacy development, the close relation between language and literacy development makes many of their recommendations relevant when focusing on language development.

Code-focused instruction. Code-focused instruction is teacher instruction that aims to strengthen children's ability to perform phonological awareness tasks (e.g., blend or omit parts of words, and isolate individual sounds in words). According to Lonigan, Schatschneider, and Westberg (2008b), children whose teachers focused on phonological coding developed stronger phonological awareness and conventional literacy skills, particularly if instruction was combined with some other aspect of print instruction, such as letter knowledge and phonics.

Shared book reading. Quantity and quality of book reading is related to vocabulary growth and literacy development, with joint storybook reading between teacher and children improving children's print knowledge (Whitehurst et al., 1999). Shared reading is a very common instructional practice characterized by the joint effort of two individuals reading text together, typically an adult (e.g., teacher) and a child. It is regarded as an effective strategy in promoting language and literacy skills for young children (Wasik & Bond, 2001), and has the largest impact (effect size=.68) on oral language abilities (especially with receptive vocabulary) of all classroom practices (NELP, 2008).

Dialogic book reading. Teachers are also able to provide instructional support through dialogic reading, which encourages the child to be the story teller and stimulates oral language by the adult asking open ended questions, repeating and expanding upon child responses, and modeling appropriate word reading and comprehension. Dialogic book reading has

demonstrated success in stimulating children's oral language skills and promoting their concept of print and various writing skills (Whitehurst & Lonigan, 1998; Whitehurst et al., 1999).

Individual and small groups. Although research on small group versus large group activities within ECE classrooms is limited (Wasik, 2008), some studies have acknowledged that explicit, teacher directed instruction conducted in small groups or individually is effective in developing early language literacy skills, whereas implicit, whole-class strategies are not (Dickinson, McCabe, & Essex, 2006). Small groups of five students or less allows for easier behavior management, scaffolding, and child participation, both actively (e.g., talking) and passively (e.g., listening) (Wasik, 2008). More research is needed to understand how group size impacts preschool children's academic and social skill development.

Relational supports. The emotional, relational support provided by ECE teachers help establish warmth in the classroom, respect between teachers-children and peer-peer, teacher and students' enthusiasm during activities, and teachers' responsiveness to their students' emotional and academic functioning. Teacher interactions as a relational support have been identified in studies as a predictor of social competency (Mashburn et al., 2008; Curby et al., 2009), with one meta-analysis determining a strong relationship between teacher interactions and student achievement (effect size of .72; Hattie, 2009). High quality teacher interactions with their students encourage language stimulation and conversation, co-regulation of attention arousal, interest, and emotional experience, and active reception of phonological information and content (Whitaker & Pianta, 2012). Children in such classrooms where there are positive teacher-child interactions are more likely to share their thoughts, ask questions, and develop positive relationships with teachers and peers (Curby et al., 2009).

Ample data exists to indicate that high-quality teacher-child interactions are associated with better outcomes in emergent literacy and rich teacher dialogue (i.e., sustained conversation within context of warm and responsive teacher child interaction), which are also linked to stronger vocabulary and decoding skills (Dickinson, St. Pierre, & Pettengil, 2004; Connor, Son, Hindman, & Morrison, 2005). For children to acquire vocabulary, children need multiple exposure to new words in various and meaningful contexts over time (Bond & Wasik, 2009). Teachers' rich conversation that includes, for example, the use of complex syntax (e.g., rate of noun use) also yields improved preschool-aged children's comprehension of complex syntax by the end of the school year (Huttenlocher, Vasilyeva, Cymerman, & Levine, 2002). While ECE programs that have a parent or home component may be able to implement strategies within the home environment to increase children's exposure to vocabulary more consistently and across settings, it is difficult to frequently assess how often such interactions are present. Thus, ECE teachers have the responsibility of fostering these interactions and conversations, whether it is during informal tasks (e.g., simple conversation, extending vocabulary works in other activities) or more formal tasks (e.g., during shared book reading) to ensure children are engaging in rich dialogue that will promote language development.

High quality emotional support not only promotes language and academic learning, but also fosters social-emotional development. A large scale study of over 2,000 preschool students in publically funded programs across 11 states investigated the development of academic, language, and social skills among 4-year-olds as compared to several measures of classroom quality. Based on classroom observations using the Classroom Assessment Scoring System (CLASS), higher quality teacher-child interactions that were sensitive and responsive to students were predictive of child social competence and fewer problem behaviors (Mashurn et al., 2008).

In summary, an abundance of classroom environmental factors contribute to preparing children for academic and behavioral demands of kindergarten, as well as their long-term academic and social successes. To ensure children will make the gains that research has indicated is possible during preschool year, teachers need to incorporate explicit instruction, high quality interactions (e.g., sensitive interactions, responsive feedback, and verbal engagement) and an organized but user-friendly classroom environment that supplies various literacy-based opportunities and learning experiences (Henry & Pianta, 2011).

Long-term Implications

Preschool is the ideal early childhood opportunity to expose children to learning tools, explicit teaching experiences, and social interactions that incorporate a focus on language and literacy development. Studies suggest that emphasizing language and early literacy significantly support early development, as the developmental sequence of skills important for later academic success originates before children begin kindergarten (Lonigan, Schatschneider, Westberg, 2008a). Thus, establishing and expanding on the skills they acquire during preschool enables other competencies to be developed. Whitehurst and Lonigan (1998) identified oral language, phonological processing, print knowledge, and print motivation as early literacy skills that are associated with later success in conventional reading and writing tasks. By exposing preschoolers to a larger quantity of words with similar phonological representations, more effective brain connections are made during this early age of development, allowing for lexical knowledge (important for phonological processing) to be more efficiently organized and retrieval of language-based information more easy (Dickinson & Darrow, 2013). During prekindergarten schooling, process supports promote vocabulary development, which is linked to improved development of children's capacity to attend to the sounds of language (Munson, Kurtz, &

Windsor, 2005; Storkel & Adlof, 2009). Thus, the purpose of preschool is not to establish rote memory skills in children, but to support and enhance their development of language and literacy, which is known to have implications for future academic and socio-emotional success.

Over the last two decades, preschool has been emphasized as a crucial opportunity for developing skills that children need to be successful in future schooling (Wasik, Bond, & Hindman, 2006). Longitudinal studies have shown that pre-literacy and language-related skills with basic cognitive competencies are some of the strongest predictors of early schooling academic outcomes (LaParo & Pianta, 2000; National Institute of Child Health and Human Development [NICHD] Early Child Care Network, 2004). For example, children's verbal readiness when starting elementary school is the strongest predictor of their performance on standardized tests, and grades in math and reading subjects between first and fifth grades (Kurdek & Sinclair, 2000). While early language and literacy skills are both acknowledged as having a profound effect on later academic success, longitudinal studies also suggest that language and communication skills are key to literacy acquisition (Dickinson & Tabors, 2001).

While attendance and exposure to prekindergarten schooling can enhance the child development and future outcomes, children at-risk for school failure due to factors such as poverty and low socioeconomic status (SES), as well as being a dual language learner (DLL) start preschool with weaker foundational skills. Therefore, extra effort is needed to provide these children with high quality education and interactions they need in order to obtain their potential and excel academically and socially.

Strengthening dual language learner students.

The US Census has predicted that in approximately two decades, the percent of school-aged students who speak a language other than English will double to approximately 40%, with a

higher percentage prediction for the preschool age group (Center for Public Education, 2012). Being a dual language learner (DLL) can be of benefit to a student if the student comes from a home that promotes strong language development in the native language. Being exposed to a strong foundational language at home allows for DLLs to more easily acquire a second language, such as English (August & Shanahan 2006; Castro, Ayankoya, & Kasprzak, 2011).

Although data suggests that bilingualism promotes development of stronger language, cognitive, and social skills compared to non-DLL peers (Bialystok, 2008; Kuhl, 2009), there are factors that may diminish the benefits of bilingualism. For example, classrooms that are unable to accommodate students' home language into the English-speaking classroom can impair students' capacity to stay fluent in their home language, or weaker overall in both their home and English language skills (Puig, 2010; Castro, Ayankoya, & Kasprzak 2011). This minimization of language development in one or both languages has obvious implications for a student's potential to excel in academics, especially reading, and social interactions. Early DLL learners are also noted as entering and exiting preschool with delayed literacy and language skills compared to their same age, non-DLL peers, particularly with low-income students (Paez, Tabors, & Lopez, 2007).

While several reasons may explain this trend, educators should be encouraged to provide DLL students with an environment that stimulates both their native and second language (e.g., English). The capacity to process and respond to information in different languages strengthens executive functioning skills, such as planning and flexibility, which is helpful in developing academic and behavioral skills (Castro, Ayankoya, & Kasprzak 2011). Additionally, DLLs greatly benefit from being assigned to teachers that are proficient in the student's native language, as it strengthens language automaticity and allows for the teacher to provide

explanations and fill gaps of knowledge that may be due to language barriers. To help DLLs make gains to perform comparably to English-speaking peers, specific instruction on English comprehension and decoding skills facilitates significant English language growth during preschool, which has implications for academic and social competency success in grade school. Since staffing early childhood programs with teachers that present with ideal credentials, such as bilingualism, is difficult, generalizable research is needed to identify evidence-based strategies that would effectively cater to the developmental needs of DLLs.

Critical for at-risk populations. A key component to acquiring language skills is social interactions between an adult and child (Dickenson & Tabors, 2001), but these interactions are influenced by socioeconomic status (SES). Socioeconomic status has been found to be a significant predictor of children's language skills (Fish & Pinkerman, 2003), with children from low SES families having fewer opportunities to learn and practice skills that promote language development, both in home and school, than children from more affluent families (Hart & Risley, 1995; Wasik, Bond, & Hindman, 2006). A study assessing in-home language across three SES groups (i.e., low-, middle-, and high-income) found that children from higher SES families heard significantly more words and more varied words than children in the low SES families (Hart & Risley, 1995), results that were highly correlated with children's vocabulary. Children in poverty also lack resources in the home (e.g., children's books) that promote vocabulary acquisition (Fish & Pinkerman, 2003; Aikens & Barbarin, 2008), an early skill that is important in language development (Munson, Kurtz, & Windsor, 2005; Storkel & Adlof, 2009). Despite longitudinal studies that highlight the importance of high quality early childhood education (ECE) for long-term outcomes for low-income children (e.g., Campbell, Ramey, Pungello, Sparling, & Miller-Johnson, 2002) and the increase in public preschools that could

provide high quality opportunities, disadvantaged children are still very unlikely to receive high quality instruction (NICHD Early Child Care Research Network, 2002). The Harvard Home-School Study of Language and Literacy Development longitudinal study found that preschool classrooms serving disadvantaged populations appear to lack interactions and explicit language and literacy activities (e.g., book reading) within the classroom context that support language acquisition (Dickinson & Tabors, 2001).

Teachers' instructional and interactive techniques, however, can significantly improve disadvantaged children's language development. Opportunities to interact and converse with peers and teachers has been shown to increase the amount of discussions children engage in and enhances their receptive language (i.e., vocabulary) as measured on the Peabody Picture Vocabulary Test-III (Wasik, Bond, & Hindman, 2006). Additionally, there is a positive correlation between teachers providing feedback to children's language, asking descriptive questions, and using active listening with their students during and after book reading activities with children's language growth.

Accreditation organizations, such as the National Association for the Education of Young Children (NAEYC), have set criteria for ECE programs to meet in order to be considered a high quality classroom. It is not enough, however, to assume that programs that meet criteria and are accredited by such organizations actually provide high-quality services. For example, Zan (2005) examined 116 preschool programs in one state serving at-risk children that at the time were all accredited by NAEYC. Classrooms were observed by individuals trained on the Early Childhood Environment Rating Scale, Revised Edition (ECERS-R; Harms & Cryer, 1998) over the course of 3 years. While overall classroom observation scores were within a "good" range on the ECERS-R, many programs failed to yield high quality of educational curricula that

matched the standards required by NAEYC. Therefore, classroom observation measures are important tools in program evaluation and monitoring to ensure that children are receiving the appropriate level of education and care that is not only mandatory by policy, but to enhance children's outcomes.

Preschool Classroom Observation Measures

Children demonstrate greater developmental gains when teachers foster warm, responsive interactions with their students that promote healthy relationships and communication, promote learning (including academic, language, and emotional development), and encourage children to explore their classroom resources (Yoshikawa et al., 2013). Despite our understanding that children benefit from such high process quality, as well as the structural supports that provide a more effective environment for teachers and children to learn and interact, a large portion of ECE programs do not demonstrate a comparable level of classroom quality that is expected to yield desirable child outcomes (NICHD Early Child Care Research Network, 2002; Justice, Mashburn, Hamre, & Pianta, 2008).

To break the pattern of just barely providing children with the classroom supports that we know promote the learning environment and successes of young children, classrooms should be evaluated on how well they provide these supports. The following classroom observation measures have been defined as valid and reliable tools used in early childhood education settings serving children ages 3-6 years old (Whittaker & Pianta, 2012; Reutzler & Jones, 2013). A review of the literature reveals that there is a paucity of classroom observation scales appropriate for use in preschool programs that are both valid and reliable measures that *also* have confirmed predictable validity. Because the education and psychology fields have a wealth of knowledge regarding the school environmental factors that promote young children's development,

preschool programs should be more aware of how their current conditions influence child outcomes. This relationship between classroom observations and child outcomes as measured by an observation scale is *predictable validity*. Predictive validity is a type of criterion-related validity where the scores are predictive of future scores or outcomes (Morgan, Gliner, & Harmon, 2006). Understanding which classroom supports predict certain child outcomes can help educators and program evaluators be proactive and prepare classroom environments to promote skills that may be lacking or require more intense support within their pupil population. To more easily conceptualize the focal point of assessment for each of these measures, the measures are presented as either a global, interaction-focused, or domain specific (Neuman & Carta, 2011).

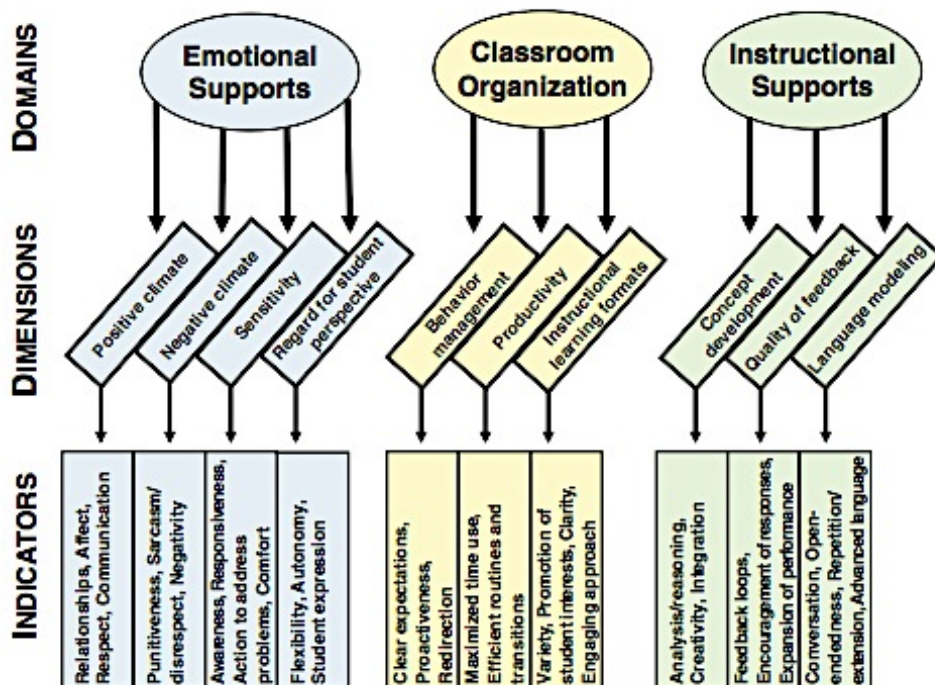
Global. The most common type of classroom observation measure used for evaluating the overall quality of support for children's language and literacy are global ratings (Neuman & Carta, 2011). Though many global measures exist, the most commonly used metric for overall program quality in ECE settings (e.g., Head Start, preschool, and subsidized child care) is the *Early Childhood Environment Rating Scales-Revised* (ECERS-R; Harms, Clifford, & Cryer, 1998). Since its original publication in 1980, this tool has been used internationally by researchers and educators for self-assessment in center-based programs serving children ages 2.5 to 5. It is confirmed as a reliable, valid measure for assessing the structural, programmatic, and interpersonal features of classroom quality. Forty-three items are rated on a quality indicators scale of 1 to 7, and categorized into subscales to evaluate seven main components of classroom environment: space and furnishings, personal care routines, language-reasoning, activities, interaction, program structure, and parents and staff. Scoring procedures allow for subscale and total classroom quality scores to be computed.

The ECERS-R has been found to be a reliable and valid measure of overall classroom environment quality (Harms, Clifford, & Cryer, 2005; Clifford, Reszka, & Rossback, 2010). Further, factor analysis studies and a content analysis study identified factors measured by the ECERS-R, which assess structural and process quality (La Paro, Thomason, Lower, Kintner-Duffy, & Cassidy, 2012). Based on the data that suggests structural and process supports in ECE classrooms are key for child development and future success, the ECERS-R is considered a very useful tool in measuring research supported classroom factors. Predictive validity studies suggest that higher quality classrooms, as measured by the ECERS-R, are associated with development of expressive language (Mashburn et al., 2008), receptive language, print awareness, book knowledge (Clifford, Reszka, & Rossbach, 2010), and overall higher cognitive scores (Love et al., 2004). Additionally, children in preschool classrooms measured by the ECERS-R as high quality on the social interactions and language reasoning subscales and on the total score demonstrated greater socio-emotional and relational skills (i.e., independence, concentration, cooperation, and conformity) (Sammons, Sylva, Melhuish, Siraj-Blatchford, Taggart, & Elliot, 2003). Because of its validity implications on child outcomes, components of the ECERS-R are integrated into professional licensure and credentialing systems (e.g., National Association for Regulatory Administration, [NARA], 2009). This ECE classroom observation measure is a widely used and valued tool, making it a leading model which ECE accountability and improvement systems can incorporate.

Interaction focused. While the ECERS-R and its preceding versions have been valued by educators, policymakers, and researchers for the measure's validity and applicability, some researchers perceive that global measures of classroom quality are too broad to provide specific information on variables, such as teacher-child interactions, that contribute to learning (Whitaker

& Pianta, 2012). Instead, educators may prefer to supplement the ECERS-R with an interaction-focused observation measure on classroom quality, which mostly hones in on the instructional and relational interactions occurring within classrooms. One example of such an observation tool is the Classroom Assessment Scoring System Pre-K (CLASS Pre-K; Pianta, LaParo, & Hamre, 2008). This measure is designed to assess classrooms serving children age 3 to 5 and specifically examines the quality of teachers' instructional interactions, social interactions, organization, and intentionality (i.e., productivity) of the classroom. CLASS Pre-K items are rated by observers on a Likert scale from one to seven across 10 sub-dimensions, which contributes to three overall domains that characterize observed classroom interactions.

Figure 1: CLASS Conceptual Framework (Pianta & Hamre, 2009).



Developers of the CLASS Pre-K have reported that the measure is a reliable and valid tool in examining interactions between adults and children in the classroom (Pianta, LaParo, &

Hamre, 2008). Studies on preschool classrooms on children outcomes have indicated that the instructional support domain on the CLASS Pre-K, which assesses quantity and quality of teachers' language stimulation and supportive strategies, is significantly associated with children's receptive language, oral and written language, rhyming, and letter naming skills (Mashburn et al., 2008). Further, studies have indicated that academic gains noted through the kindergarten year were associated with high-quality instructional interactions provided during the preschool year (Burchinal et al., 2008).

Domain specific. As the emphasis on early literacy and language continues to be called for in ECE programs, particularly for low-income populations, there has been an increase in classroom observation measures that specifically evaluate the quality and quantity of environmental supports for young children's language and literacy. While there is a rise in generating such domain-tailored observation scales, relatively few literacy and language specific classroom quality measures have been identified (Halle, Vick Whittaker, & Anderson, 2010). Of those identified, not one of the widely used measures have had predictive validity confirmed. One well-known measure is The Early Language and Literacy Classroom Observation, PreK (ELLCO PreK; Smith, Brady, & Anastasopoulos, 2008). This measure is designed for use within center-based classrooms, serving children ages 3 to 5, to assess how well preliteracy activities (i.e., storybook reading, circle time conversations, and writing tasks) are incorporated and involve children. A teacher interview is also included in the classroom assessment to supplement the data gathered during classroom observation. Observers are required to respond to 19 items on how literacy materials were used within the classroom. These items are organized into five sections: classroom structure, curriculum, the language environment, books and book reading, and print and early writing; these sections are then organized into one of two subscales:

General Classroom Environment, and Language and Literacy (Halle, Vick Whittaker, & Anderson, 2010; Whittaker & Pianta, 2012). Based on the publishing website, the ELLCO Research Edition has been documented as having 90% or better reliability (Brookes Publishing, 2014), and the authors of the ELLCO Pre-K anticipate that the psychometric properties will be stronger than that of the ELLCO Research Edition (Halle, Vick Whittaker, & Anderson, 2010). However, validity and reliability information on the ELLCO Pre-K are not yet available to report.

Another domain-specific observation measure that has received increased attention in the last few years is the Observation Measures of Language and Literacy (OMLIT; Goodson, Layzer, Smith, & Rimdzius, 2006). Its origin began when it was developed for a national study on Even Start, referred to as the Even Start Classroom Literacy Intervention and Outcomes Study (CLIO; Judkins et al., 2008). The OMLIT consists of six measures or scales, all of which trained observers can use to evaluate classrooms structural and process supports. The first measure, Classroom Description, gathers basic classroom characteristics. The second scale, Snapshot of Classroom Activities (Snapshot), gains time-sample record of child and adult involvement in activities, teacher-child ratio, integration of literacy materials, and types of activities (i.e., early literacy or developmental activities) children are engaging. The Read-Aloud Profile (RAP) is the third measure in the OMLIT and is also a time-sample account of teacher support with child comprehension, print motivation, and phonological awareness during shared book reading. In the fourth measure, the Classroom Literacy Instruction Profile (CLIP), observers rate the characteristics of the literacy instruction and activities, such as the cognitive challenge and depth to class discussion. The Quality Rating of Language and Literacy Instruction (QUILL) is the fifth OMLIT measure, and items are rated on a Likert scale of one to five on the overall quality

and quantity of classroom based literacy practices. Finally, the sixth scale, the Classroom Literacy Opportunities Checklist (CLOC), is an inventory of literacy resources available in the classroom (Judkins et al., 2008; Halle, Vick Whittaker, & Anderson, 2010; Whittaker & Pianta, 2012). In the CLIO study, the researchers extracted items from the six OMLIT measures to correspond to five classroom constructs (i.e., substantial amount of literacy resources and support for oral language, print knowledge, phonological awareness, and print motivation) that were targeted for improvement in the study. Of these constructs, the OMLIT was found to be related to children's English phonological awareness and blending skills (Judkins et al., 2008).

Present Study

Based on the preschool skills that have been identified in research as indicative of future academic success, this present study will consider specifically how classroom supports (e.g., structural and process) predict child language growth. The rationale for focusing on language development is to understand the classroom supports that facilitate language acquisition which have been seen as underling the development of many other important skills, including early literacy. Given that the classroom environment influences both instructional and relational interactions and use of language during these interactions, it is reasonable to think that frequent and positive classroom interactions will enhance children's social competency, which may promote children's continued engagement in social and learning interactions, consequently providing additional opportunities for language practice and development.

This present study will utilize the data from the nationally randomized study of the Even Start Family Literacy program, namely the CLIO study (Judkins et al., 2008). The dataset for this study is extensive, providing an opportunity to investigate if classroom supports (as measured by the OMLIT) are linked to children's social competency and language development.

Because of the large number of variables assessed on the OMLIT, it is advantageous to consider specific constructs related to classroom quality using information from the OMLIT. Prior to examining the research questions of this study, specific classroom support constructs (i.e., types of structural and process supports) were formed based on items from the OMLIT with available data. The concept and organization of these constructs is based on theory, and the selection of OMLIT items that will form the theoretically-based constructs will be empirically driven. The three confirmed structural and process supports identified from the exploratory factor analysis (EFA) were access to literacy materials, classroom organization, and teacher-child interactions and opportunities. These are used as the three independent, or predictor, variables in this study. Table 4 (see Methodology section) organizes classroom supports measured in this study that have been linked to positive child language, literacy, cognitive, and/or socioemotional outcomes. Covariates that will be accounted for in all levels of analysis will include child age, sex, race, home language, teacher language, fall oral language score, fall understanding of syntax and grammar score (TOLD P-3 Grammatic Understanding subtest), and fall social competency score (Teacher Rating Form). The findings from this study will be used to address the following research questions:

Research Questions

1. Do classroom supports, specifically access to literacy materials, classroom organization, and teacher-child interactions and opportunities, predict child oral language and understanding syntax and grammar growth? In other words,

1.1. Does access to literacy materials, as measured by the OMLIT, predict child language growth, specifically in oral language and understanding syntax and grammar?

Hypothesis 1.1a: It is hypothesized that access to literacy materials will be a significant positive predictor of child oral language growth.

Hypothesis 1.1b: It is hypothesized that access to literacy materials will be a significant positive predictor of child language growth in understanding syntax and grammar.

1.2 Does classroom organization, as measured by the OMLIT, predict child language growth, specifically in oral language and understanding syntax and grammar?

Hypothesis 1.2a: It is hypothesized that classroom organization will be a significant positive predictor of child oral language growth.

Hypothesis 1.2b: It is hypothesized that classroom organization will be a significant positive predictor of child language growth in understanding syntax and grammar.

1.3. Do teacher-child interactions and opportunities, as measured by the OMLIT, predict child language growth, specifically in oral language and understanding syntax and grammar?

Hypothesis 1.3a: It is hypothesized that teacher-child interactions and opportunities will be a significant positive predictor of child oral language growth.

Hypothesis 1.3b: It is hypothesized that teacher-child interactions and opportunities will be a significant positive predictor of child language growth in understanding syntax and grammar.

2. Does growth in social competency mediate the effect of classroom supports, specifically access to literacy materials, classroom organization, and teacher-child interactions and

opportunities, on child language growth, specifically in oral language and understanding syntax and grammar?

2.1 Does growth in social competency, as measured by the CLIO Teacher Rating Form, mediate the effect of access to literacy materials, as measured by the OMLIT, on child language growth, specifically in oral language and understanding syntax and grammar?

Hypothesis 2.1a: It is hypothesized that growth in social competency will significantly and positively mediate the effects of access to literacy materials on child language growth in oral language.

Hypothesis 2.1b: It is hypothesized that growth in social competency will significantly and positively mediate the effects of access to literacy materials on child language growth in understanding syntax and grammar.

2.2 Does growth in social competency, as measured by the CLIO Teacher Rating Form, mediate the effect of classroom organization, as measured by the OMLIT, on child language growth, specifically in oral language and understanding syntax and grammar?

Hypothesis 2.2a: It is hypothesized that growth in social competency will significantly and positively mediate the effects of classroom organization on child language growth in oral language.

Hypothesis 2.2b: It is hypothesized that growth in social competency will significantly and positively mediate the effects of classroom organization on child language growth in understanding syntax and grammar.

2.3 Does growth in social competency, as measured by the CLIO Teacher Rating Form, mediate the effect of teacher-child interactions and opportunities, as measured by the

OMLIT, on child language growth, specifically in oral language and understanding syntax and grammar?

Hypothesis 2.3a: It is hypothesized that growth in social competency will significantly and positively mediate the effects of teacher-child interactions and opportunities on child language growth in oral language.

Hypothesis 2.3b: It is hypothesized that growth in social competency will significantly and positively mediate the effects of teacher-child interactions and opportunities on child language growth in understanding syntax and grammar.

CHAPTER TWO: METHODOLOGY

Participants

Even Start programs operating in the 48 contiguous states were considered for eligibility to participate in the CLIO study, provided they met certain requirements. These requirements included the following:

“serve preschool children in a center-based instructional setting, enroll a minimum of either five 3- and 4-year olds in one center-based classroom, or eight 3- and 4-year olds in two center-based classrooms, provide at least 12 hours per week of center-based preschool instruction, serve a majority of families who speak either English or Spanish, be able to exert control over the curricula used in preschool classrooms, and be willing to meet the study requirements, including being randomly assigned to one of the five study groups” (Judkins et al., 2008, pp. 12-13).

Of the Even Start projects across the nation, 330 projects were eligible to participate. These projects were divided into sections of the country and contacted for participation; one hundred twenty projects distributed throughout 33 contiguous states in the United States agreed to participate. Of the participating programs, enrolled children were required to be between 3 to 5 years of age at the time of assessment and not yet enrolled in kindergarten to participate in the study. Due to the participation criteria and the volunteer nature of the participant group, the study sample was not considered to be nationally representative of Even Start programs (Judkins et al., 2008).

The present study focuses only on the data collected for the projects, classrooms, and children that participated in the control group during the fall 2004-spring 2005 school year. The purpose of only analyzing data from the control group was to allow the examination of the effects of classroom variables without the potential influences of the intervention procedures. The CLIO study collected child outcome data (i.e., language, literacy, and social competency performance data) at the beginning and end of the school year during the fall 2004-spring 2005 study year. During the 2005-2006 academic year, only spring 2006 data were collected for the control group. Consequently, to address the child language growth in the absence of the planned intervention, only the data from the control group for the 2004-2005 year were used.

The CLIO data set is a secured data set governed by policies of the United States Department of Education and the Institute for Education Sciences (IES). Permission has been granted to have the data stored in a secure data room at the Frank Porter Graham Child Development Institute. A number of guidelines must be adhered to when reporting data from a secured dataset. Pertinent to this study, when reporting data all unweighted sample size numbers, minimum and maximum values, frequency counts, and degrees of freedom must be rounded to the nearest ten.

The original proposal of the current study included a rounded total of 220 participants. Due to significant systematic missing data for some cases (e.g., entire classroom missing all data), approximately 20 cases were deleted from the study ($n=200$). The explore function was run to investigate outliers, normality, and linearity. Formal inference tests, such as Shapiro Wilkes test of normality, can be informative in evaluating the normality of data, but they are not necessarily the most useful in interpreting normality in large datasets. This situation is due to the decrease in the standard errors for skewness and kurtosis with the increase of sample size, which

is less likely to reject the null hypothesis when the distribution of scores is normal. Under these circumstances the recommendation is to rely more on the shape of distribution of scores from statistical graphs (Tabachnick & Fidell, 2007), Mahalanobis Distance values, and standardized residual values (criterion: greater than -3.29 and less than 3.29) for each variables' skewness and kurtosis values to gauge whether the data meet the assumption for normality.

Preliminary analysis showed that there was evidence of moderate skewness for some variables; however, given the nature of variables under investigation, one may expect there to be slight negative skewness when examining children growth, as it is likely to see more growth than not over the preschool academic year. Variable transformations were considered, as this is a common method to improve skewness and produce a more normal distribution (Tabachnick & Fidell, 2007). Because the difference scores, or *change scores*, were computed to represent students' growth over the year based on fall and spring social competency and language assessments, transformations would have greatly altered and invalidated the interpretation of the change scores. A review of boxplots indicated very few outliers, and minimal extreme outliers. To diminish the impact of significant outliers without greatly altering the data, only the few extreme outliers were deleted. The study sample size reduced to a rounded total of 190 children across 32 classrooms and 22 Even Start projects. The tables on the following pages summarize child and classroom level data.

Table 1: Sample Child Demographics.

Variable	Total*/ Mean	Percentage/ Standard Deviation
GENDER		
Male	100	46.3
Female	120	53.7
AGE		
Fall Age (months)	50.23	6.73
Spring Age (months)	54.87	6.74
RACE/ETHNICITY		
Hispanic/Latino	110	59.5
White	30	13.2
African American	20	10.5
American Indian/Alaska Native	10	6.3
Asian	10	5.8
Multiracial (Not Hispanic/Latino)	10	4.7

*score rounded to nearest 10 to adhere to IES data use agreement

Table 2: Child Language Exposure

Variable	Total*	Percentage
HOME LANGUAGE		
English Only	70	35.8
Foreign Language (includes homes that may speak English)	120	64.2
TEACHER LANGUAGE		
English Only	70	36.3
English and a Foreign Language	120	63.7

*score rounded to nearest 10 to adhere to IES data use agreement

Table 3: Child Fall and Change Scores on Language and Social Competency Measures

Measure	Total*	Mean	Minimum*	Maximum*	Standard Deviation
LANGUAGE					
IGDI Picture Naming Subtest, Fall Score	180	14.87	<10	40	9.04
IGDI Picture Naming Subtest, Change Score	170	3.36	-10.0	20.0	4.82
TOLD P-3 Grammatic Understanding Subtest, Fall Score	170	7.21	<10	20	5.36
TOLD P-3 Grammatic Understanding Subtest, Change Score	170	2.55	-10.0	10.0	4.63
SOCIAL COMPETENCY					
CLIO Teacher Rating Form, Fall Score	170	36.25	10	50	8.00
CLIO Teacher Rating Form, Change Score	170	2.43	-20.00	20.0	6.03

*score rounded to nearest 10 to adhere to IES data use agreement

Measures

The current study utilized the following measures from the CLIO study-- the Observation Measures of Language and Literacy Instruction (OMLIT; Goodson, Layzer, Smith, & Rimdizius, 2006), The Individual Growth and Development Indicator (IGDI) Picture Naming subtest (Early Childhood Research Institute, 2003), the Test of Language Development – Primary (TOLD P-3)

Grammatical Understanding subtest (Newcomer & Hammill 1997), and the CLIO Social Competency Scale (Judkins et al., 2008). The OMLIT is a classroom measure of language and literacy used in the current study to examine the classroom supports that may predict child language and social competency development. Items from the six OMLIT subscales were extracted to create the classroom support variables in the present study that may predict child outcomes. Classroom support variables only included data collected during classroom observations in spring 2005.

The three child outcome variables (i.e., the IGDI Picture Naming subtest, TOLD P-3 Grammatical Understanding subtest, and the CLIO Social Competency Scale) were collected during both fall 2004 and spring 2005. Data from both time points were used in the present study to determine if 1) the classrooms supports, as determined by the OMLIT, predicted child language growth and 2) if social competency development mediated classroom supports effects on child language growth.

Classroom supports. The Observation Measures of Language and Literacy Instruction (OMLIT; Goodson, Layzer, Smith, & Rimdizius, 2006) was used in the CLIO study to assess the effects of intervention curricula on instructional practices within classrooms. The OMLIT was designed to address the need for research-based, reliable, and valid measure of ECE classrooms supports and instructional practices that support language and early literacy development (Judkins et al., 2008; Halle, Vick Whittaker, & Anderson, 2010). The rationale for the OMLIT was derived from a combination of research, theory, and professional opinion (Judkins et al., 2008). Data were obtained on the OMLIT to examine whether classroom supports were linked to the development of early literacy skills. These six measures are briefly described below. The full OMLIT is provided in the Appendix.

The OMLIT consists of six measures: Classroom Description, Snapshot of Classroom Activities (SNAP), Classroom Literacy Instruction Profile (CLIP), Read Aloud Profile (RAP), Quality of Instruction in Language and Literacy (QUILL), and Classroom Literacy Opportunities Checklist (CLOC). Training to use the OMLIT included classroom training, practice observing preschool classrooms, and collecting paper and pencil inter-rater reliabilities. The SNAP, RAP, CLIP, and QUILL measures require eight hours of classroom training each, whereas the Classroom Description and CLOC measures requires less than a half-day of classroom training each (Halle, Vick Whittaker, & Anderson, 2010). Observers using the OMLIT measures should observe at least three hours, or half of a preschool day, in the classroom to obtain sufficient information to score the measures. Several of the measures were time- or event-sampled; other measures were based on overall observations of the classrooms. For the current study, all OMLIT measures were considered for inclusion. However, based on empirical data and the researcher's professional opinion it was concluded that only select items from the QUILL and CLOC measures would be included in creating the independent variables for this study (See procedure under Data Analysis-Exploratory Factor Analysis in this chapter). Therefore, further details on the OMLIT classroom observation measures will focus on the QUILL and CLOC measures.

The QUILL rates the frequency and quality of teacher instructional practices on a Likert five-point scale that support for language and literacy development. Specific items on the QUILL address how teachers interact and include English Language Learner (ELL) students in the classroom. The CLOC is an inventory of literacy resources observable in the classroom and is completed at the end of a half-day observation. Ratings on a Likert three-point scale were provided for 56 items, which are organized into 10 sections.

For the CLIO study, inter-rater reliability and inter-rater agreement were required to be at least 75% for the observer to be allowed to collect data for the study. Inter-rater agreement was based on coding agreement across 90 paired observations at the beginning of the CLIO study, and during the subsequent spring semesters. Inter-rater reliability for the QUILL measure excluded reliability on items that focused on ELL students, and determined 67% to 88% inter-rater reliability on the other items regarding the frequency of language and literacy instruction for all students. Finally, inter-rater reliability for nine of 10 sections (reliability data missing for Listening Area) on the CLOC was between 75% and 90%. Validity data have not been collected on the OMLIT measures to this date.

Child language outcomes. The CLIO study administered a battery of tests and several subtests to assess children's language and literacy development in the areas of (a) expressive language (in English and Spanish), (b) receptive language, (c) phonological awareness, (d) print knowledge, (e) syntax, and grammar. The current study focuses on language growth by analyzing data on expressive language, and syntax and grammar. Other child outcome measures were excluded from the current study because they did not report raw scores that were needed to successfully test the research questions. Thus, two subtests will be used to measure child language growth: Individual Growth and Development Indicator (IGDI) Picture Naming subtest, and The Test of Language Development – Primary (TOLD P-3).

Individual Growth and Development Indicator. The Individual Growth and Development Indicator (IGDI) instrument was developed to monitor children's growth across developmental domains. It can be used with children ages birth to 8 and is acknowledged for being easy to use as well as being a reliable and valid measure of child development. The IGDI or its subtests may be administered periodically to track child progress toward a set goal; if the

child is not making as much growth as desired, educators may determine that the child would benefit from intervention support (Missall, McConnell, & Cadigan, 2006). The preschool version of the IGDI assesses language and early literacy skills. Only one subtest from the IGDI instrument was used in the CLIO study, namely the Picture Naming subtest (Early Childhood Research Institute, 2003). This subtest evaluates expressive language skills by administering pictures of common objects to a child and asking the child to name the pictures as quickly as possible in one minute. The total number of items correctly named is the child's subtest score. The CLIO study administered the English version of this subtest to all participants, and also administered the Spanish version to children from Spanish-speaking families (Judkins et al., 2008). Reliability and validity were available from the IGDI publishers for the English form but not for the Spanish version. Test-retest reliability for the English-IGDI is .67 (McConnell, Priest, Davis, & McEvoy, 2002). Concurrent validity was reported for the Preschool Language Scale-3 (speech and language scale), which ranged from .63 to .79 for children ages 3 to 5 (PLS-3; Zimmerman, Steiner, & Pond, 1992). The Picture Naming subtest is correlated with the Dynamic Indicators of Basic Early Literacy Skills (DIBELS) measures of letter-naming fluency ($r=.32-.37$; Kaminski & Good, 1996). The DIBELS measure assesses literacy development in the areas of phonemic awareness, alphabetic principle, accuracy and fluency with connected text, reading comprehension, and vocabulary from kindergarten through grade 8.

The Test of Language Development – Primary. The Test of Language Development - Primary (TOLD P-3) Grammatical Understanding subtest (Newcomer & Hammill, 1997) assesses young children's capacity to understand the meaning of English sentences. When administering the Grammatical Understanding subtest, the assessor reads a sentence to the child, and then requests the child to select one of three pictures that correctly matches the sentence read. The

subtest includes 24 items, each scored either 0 or 1; testing is discontinued after six consecutive incorrect responses (Judkins et al., 2008). Internal consistency is reported to be .86 for four year olds, and .82 for five year olds (Newcomer & Hammill, 1997). The TOLD P-3 Grammatical Understanding subtest is correlated with the Bankson Language Test-Second Edition, a measure of preschool children's pragmatic, semantic, and syntactical language, with correlation ranges between .64 and .79 with the overall language quotient, morphological/syntactic rules, and semantic knowledge for children in grades 1-3 (Bankson, 1990).

Social Competency. The CLIO Social Competency Scale, created specifically for the CLIO study to examine children's cooperative and problem behavior, was based on information collected on the CLIO Teacher's Rating Form. The items on the rating form were adapted from the FACES Cooperative Classroom Behavior Scale and the FACES Behavior Problems Scale, scales used in the Head Start Family and Child Experiences Survey (FACES) (U.S. Department of Health and Human Services, 2003). Twelve items focusing on cooperative behavior make up the FACES Cooperative Classroom Behavior Scale, which are rated using a three-point Likert scale (i.e., never, sometimes, very often). The FACES study reported a Cronbach's alpha of .88 (U.S. Department of Health, 2003), and a similar alpha of .89 was reported using the CLIO spring 2004 baseline data (Judkins et al., 2008). The second contributing scale, the FACES Behavior Problems Scale, includes 14 items on difficult behaviors (i.e., aggression, hyperactivity, withdrawal) and are rated using a three-point Likert scale. The FACES study reported a Cronbach's alpha of .86 (U.S. Department of Health, 2003), and an alpha of .84 was reported using the CLIO spring 2004 baseline data (Judkins et al., 2008).

Not all items from the FACES Cooperative Classroom Behaviors and Behavior Problems scales were used to create the CLIO Teacher's Rating Form on social competency. The FACES

Cooperative Classroom Behaviors and Behavior Problems scales were combined and tailored to create a form that would emphasize more social competence and less on teacher behavior modification. After conducting a four-parameter logistic item-response theory (IRT) modeling and rejecting two items due to low correlations with the combined scale, 24 items were deemed highly correlated with one another (Cronbach's alpha=.92) and made up the CLIO Social Competency Scale (Judkins et al., 2008).

Procedures

To investigate the research questions proposed in the current study, data were extracted from the Even Start Classroom Literacy Interventions and Outcomes (CLIO) study. The CLIO study was the first national experimentation study of Even Start since its inception in 1989, though previous national non-experimental studies had been conducted. Even Start is an early childhood education (ECE) program comparable to Head Start that incorporates a family literacy model to promote literacy development in low-literacy, low-income children and their families. Prior to the CLIO study, the U.S. Department of Education funded three national evaluations of Even Start (Judkins et al., 2008). The first two studies, which were random assignment studies, indicated that Even Start did not yield the literacy gains anticipated in both the participating preschool students and their parents compared the control group (St. Pierre et al., 1995; St. Pierre et al., 2003). The third study was designed to understand the underlying factors (i.e., related to Even Start implementation, quality and intensity of instruction and curriculum content, and family participation) that may have contributed to the lack of evidence regarding literacy outcomes for participants in Even Start programs from the first two studies (St. Pierre, Ricciuti, & Rimdzius, 2005). Even Start failed to demonstrate consistent and higher quality child and parent education services compared to Head Start and other mainstream ECE programs.

As an effort to enhance the services and child and parent outcomes in Even Start, the CLIO study implemented evidenced-based, literacy-based curricula in a set of randomly assigned Even Start projects to determine if the curricula were more effective than the services typically provided at Even Start (Judkins et al., 2008). The national study was sponsored by the U.S. Department of Education National Center for Education Evaluation and Regional Assistance (NCEE) and the Institute of Education Sciences (IES) for three years (2003-2006). There were five study groups, which included a control group, two intervention groups with research-based, literacy-based ECE curricula only, and two intervention groups with research-based, literacy-based ECE and parent education curricula.

Prior to randomly assigning the projects to one of five study groups, 24 strata were created based on several variables, including project size, proportion of Spanish speaking children, year the project was up for recompetition, and region. Each strata contained five projects, and the projects were then randomly assigned to a study group. Comparison of the five study groups indicated that randomization yielded well-matched study groups and that there were no statistically significant differences between the study groups (Judkins et al., 2008). Two study groups implemented one of the two research-based curricula with both the childhood education and parenting education components, two study groups implemented one of the two research-based curricula along with the existing parenting education services at the Even Start projects, and one study group (i.e., control) was not provided CLIO interventions and continued with operation with their existing Even Start services.

Data were collected over a three-year period (Judkins et al., 2008), with the first year (i.e., fall 2003 to spring 2004) devoted to collecting baseline data. The subsequent school represented the two-year implementation of the CLIO curricula. Sources of data collection were

at the child, parent, classroom, and project level. The study concluded that curricula with both ECE and parent education components had statistically significant positive impacts on classroom variables, namely support for print knowledge and adequacy of literacy resources, as well as child social competency (Judkins et al., 2008). To address the proposed research questions in the current study, only the classroom and child level data for the control group collected during the fall 2004-spring 2005 school year will be examined. An application was submitted to and approved by the University of North Carolina at Chapel Hill's IRB (Study #: 14-3002).

Data Analyses

Due to significant missing data (according to approximately 24% listwise deletion) among the dependent variables as mentioned in the Participants section, missing values analysis and multiple imputation were first addressed. An exploratory factor analysis (EFA) was then used to identify the values of the independent variables for this study. In the CLIO study children were nested within classrooms, which were nested within Even Start projects. Thus, hierarchical linear modeling was utilized to understand the predictive relationship between the independent and dependent variables to address nesting features. Multiple regression analyses were used to determine whether the hypothesized mediating variable, change in social competency, in fact influence the relationship between independent and dependent variables. To describe the statistical analyses used in this study, the research questions have been restated below with an overview of the analysis methodology. All statistics were completed using SPSS Statistics version 22.0.

Exploratory factor analysis.

Classroom support constructs were created based on both empirical data and by conducting an exploratory factor analysis including items across OMLIT measures to serve as

the predicting variables for child language. All five OMLIT measures (OMLIT-CLOC, SNAP, RAP, CLIP, and QUILL) were considered for the study. A significant number of classrooms did not have data for the SNAP and CLIP measures. Therefore, these measures were omitted from further analysis. Several QUILL items, such as those that did not have strong empirical support specific to English language learners and noted only frequency of classroom activities were also not included in the analysis.

Bivariate correlations were computed between the CLOC, RAP, and QUILL items that were scored for all students (i.e., items that were specific to English language learners were omitted) to determine if multicollinearity among the independent (i.e., OMLIT items) data was present. No correlations greater than .90 were present, suggesting that the OMLIT data considered did not have redundant information. A range of low to high Pearson correlation coefficients ($r^2 < .75$) with statistical significance (i.e., $p < .05$, $p < .01$) were present, but did not suggest multicollinearity. Because there was an appropriate dispersion of correlations, all variables were considered for factor analysis.

Exploratory factor analysis (EFA) determined the latent constructs underlying the classroom quality observation data. Given that the goal of the EFA was to determine what factors, how many factors, and what relationship among factors would result from the classroom quality observation data, principal axis factoring was chosen as the specific EFA method. Since the items included in the EFA are very specific to preschool classroom environment quality, the items are expected to be very similar in nature and, to some degree, correlate. Therefore, to account for this likely correlation, direct oblimin oblique rotation was conducted. The analyses provide information regarding the *internal consistency* of the EFA produced constructs. Internal consistency was represented by the Cronbach alpha statistic, which indicates the correlation of

one item with each of the other items within a composite (Morgan, Gliner, & Harmon, 2006). Items that appeared less correlated with others within the constructs were eliminated, and internal consistency was reexamined in order to create strongly unified classroom support constructs. Of the three measures originally considered for EFA, the RAP items did not conceptually and strongly identify with one specific construct nor correlate strongly with other items in a construct. Thus, the RAP items were no longer of interest for this study and dropped for consideration. Another EFA was conducted with only nine items from the CLOC and QUILL measures. Table 4 displays the sets of items included in the EFA and empirical data documenting the impact of similar classroom structural and process supports on preschool language and socioemotional outcomes. Table 5 presents the descriptive statistics of scores for each OMLIT item included in the EFA. The appendix provides qualitative description of each potential rating observers could assign to the classrooms. Overall, classrooms demonstrated only having mediocre evidence of materials accessible to the children and structure within the classroom to promote organization and independent movement, and inconsistent quality of instructional and relational support.

Table 4: Empirical Evidence for OMLIT Items Use to Create Specific Support Constructs to Use as Predictor Variables

Classroom Level Support	Specific Support Construct	OMLIT Measure and Item	Supporting Evidence for Construct
Structural	Access to Literacy Materials	CLOC 14: "There are toys and/or materials accessible to children that include words." CLOC 23: "Books accessible to children in the classroom represent a variety of types."	Neuman & Roskos, 1997 Wasik & Bond, 2001 Guo, Justice, Kaderavek, & McGinty, 2012

Structural	Access to Literacy Materials	<p>CLOC 24: “Books accessible to children in the classroom that present primarily factual information or non-fiction subject matter.”</p> <p>CLOC 37: “There are books and/or other literacy materials in the dramatic play area.”</p>	<p>Neuman & Roskos, 1997</p> <p>Wasik & Bond, 2001</p> <p>Guo, Justice, Kaderavek, & McGinty, 2012</p>
	Classroom Organization	<p>CLOC 1: “The room is arranged in distinct centers for different activities.”</p> <p>CLOC 4: “The classroom layout allows children to choose materials and participate in activities independently.”</p>	<p>Neuman & Roskos, 1997</p> <p>Wasik & Bond, 2001</p> <p>Guo, Justice, Kaderavek, & McGinty, 2012</p>
Process	Teacher-Child Interactions and Opportunities	<p>QUILL 1: “Opportunities to engage in language and literacy activities.”</p> <p>QUILL 3: “Attention to/promotion of letter/word knowledge.”</p> <p>QUILL 4: “Opportunities/encouragement of oral language to communicate ideas and thoughts.”</p>	<p>Dickinson, & Smith, 1994</p> <p>Whitehurst & Lonigan, 1998</p> <p>Girolametto & Weitzman, 2002</p> <p>Justice & Ezell, 2002</p> <p>Justice, Chow, Capellini, Flanigan, & Colton (2003)</p> <p>Dickinson, St. Pierre, & Pettengil, 2004</p> <p>Connor, Son, Hindman, & Morrison, 2005</p> <p>Dickinson, McCabe, & Essex, 2006</p> <p>Wasik, Bond, & Hindman, 2006</p> <p>Vasilyeva, Huttenlocher, & Waterfall, 2006</p> <p>Howes et al 2008</p> <p>Justice et al, 2008</p> <p>Lonigan, Schatschneider, and Westberg, 2008b</p> <p>Mashburn et al., 2008</p> <p>NELP, 2008</p> <p>Wasik, 2008</p> <p>Curby et al., 2009</p> <p>McDonald, 2009</p>

Table 5: Descriptive Statistics of OMLIT Items Included in Generated Classroom Constructs

Construct/ OMLIT Items	Total*	Mean	Minimum*	Maximum*	Standard Deviation
Structural Supports					
Access to Literacy Materials					
CLOC 14	190	1.49	<10	<10	.648
CLOC 23	190	1.76	<10	<10	.462
CLOC 24	190	1.38	<10	<10	.744
CLOC 37	190	.84	<10	<10	.697
Classroom Organization					
CLOC 1	190	1.91	<10	<10	.426
CLOC 4	190	1.87	<10	<10	.339
Process Support					
Teacher-Child Interactions and Opportunities					
QUILL 1	190	2.52	<10	<10	.623
QUILL 3	190	2.87	<10	<10	.607
QUILL 4	190	2.75	<10	<10	1.037

*score rounded to nearest 10 to adhere to IES data use agreement

A Kaiser-Myer-Olkin value of .59 and statistically significant Bartlett’s Test of Sphericity ($p < .01$) supported the factorability of the items considered. Analysis of eigenvalues, scree plot, and the researcher’s application of theory and clinical knowledge determined three identifiable factors among the nine classroom observation items. Three factors revealed eigenvalues exceeding 1, explaining 32.9%, 15.8%, and 10.7% of the variance, respectively. The scree plot also displayed a large break after the third factor giving support to the selection of three factors.

Factor loadings, as seen in Table 6-8, suggest convergent validity, or high correlation between items in a factor. The first factor, access to literacy materials, consists of four items with factor loadings between .34 and .79. This construct represents one of two measures of structural supports in the study classrooms. While one item (CLOC 37: “There are books and/or other literacy materials in the dramatic play area.”) had a relatively lower correlation with the

other items within the factor (e.g., .4 or greater is recommended by Brown, 2006), application of the researcher’s knowledge of empirical data and clinical judgment supported the inclusion of this item as meaningful within the first factor. The second factor, classroom organization, includes two items with .71 and .92 factor loadings; this factor is the second of two measures used in this study to investigate the association of structural supports on students oral language growth. The third factor, teacher-child interactions and opportunities, contains three items with factor loadings between .55 and .86. This construct represents the only process support measure used in this study in predicting child language growth.

Table 6: Factor Loadings for Factor 1, Access to Literacy Materials

Item	Factor Loading
CLOC 14	.79
CLOC 24	.70
CLOC 23	.54
CLOC 37	.34

Table 7: Factor Loadings for Factor 2, Classroom Organization

Item	Factor Loading
CLOC 4	.92
CLOC 1	.71

Table 8: Factor Loadings for Factor 3, Teacher-Child Interactions and Opportunities

Item	Factor Loading
QUILL 4	.86
QUILL 1	.64
QUILL 3	.55

The factor correlation matrix as presented in Table 9 indicates low correlations between factors, indicating discriminant validity. In other words, factors are distinct and uncorrelated.

Correlations above .7 would warrant concern that the factors are too similar and do not add unique meaning.

Table 9: Factor Correlation Matrix for Classroom Level Support Factors

	Factor 1	Factor 2	Factor3
Factor 1	1.00		
Factor 2	.05	1.00	
Factor 3	.30	.04	1.00

The three factors were determined to have good internal consistency. Specifically, access to literacy materials had a Cronbach alpha coefficient of .71, classroom organization had a Cronbach alpha coefficient of .72, and teacher-child interactions and opportunities had a Cronbach alpha coefficient of .75. Given that the three factors are considered distinct and reliable measures of classroom quality, factor scores for each participant were generated by SPSS 22.0. These scores indicate where each subject is rated on each factor, and were used as the predictor variables in the hierarchical linear model, linear regression, and mediation analyses.

Hierarchical linear modeling and ordinary least squares.

1. Do classroom supports, specifically access to literacy materials, classroom organization, and teacher-child interactions and opportunities, predict child oral language and understanding syntax and grammar growth?

Bivariate correlations were investigated to confirm that there were significant correlations, thus potential significant predictive associations, within the dataset between the independent and dependent variables. Multilevel regression analyses, or hierarchical linear modeling (HLM), were conducted to determine the predictable value of the independent, or

predictor, variables as identified from the EFA (i.e., access to literacy materials, classroom organization, teacher-child interactions and opportunities) on the dependent variables, oral language growth (measured by the difference between fall and spring scores on the IGDI Picture Naming subtest) and growth with understanding syntax and grammar (measured by the difference between fall and spring scores on the TOLD P-3 Grammatical Understanding subtest) (research questions 1). To determine whether the nested nature of the dataset created significant variance in child language outcomes between classrooms, HLM was used to estimate a null model (i.e., outcome variable only) and determine the intra-class correlation. For models whose outcome variable varied between classrooms, HLM was the recommended analytic procedure to proceed in estimating predictor and outcome associations so that any confounding effects related to the classroom clustering could be controlled. For models where there appeared to be very small differences between classrooms, ordinary least squares (OLS) was deemed an acceptable method for addressing research question 1. In the regression model below (See Figure 2), the arrow represents the predictive path from the independent variables (X) to dependent variables (Y), also considered path c in mediation testing (Baron & Kenny, 1986; Zhang, Zyphur, & Preacher, 2009).

Figure 2: Model for Classroom-Level Support Variables Predicting Child Language Growth (Research Question 1).



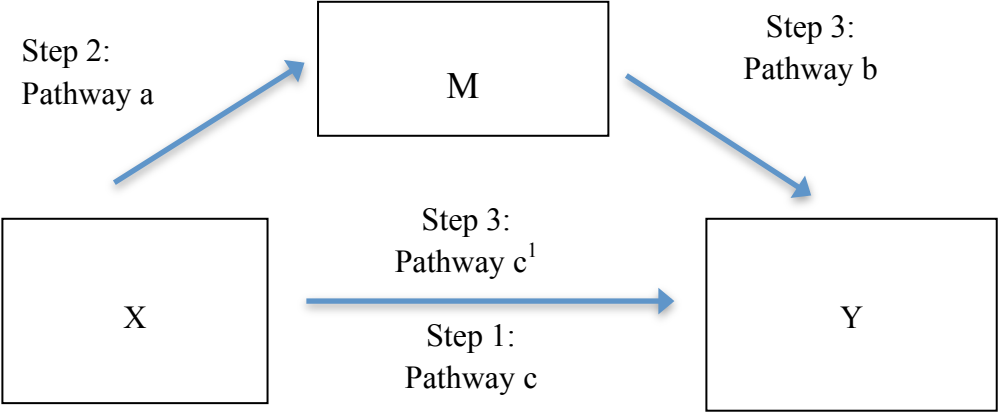
For significant independent-dependent variable relationships, an additional step was taken in answering research question 1 in order to more thoroughly understand the predictiveness of the independent variable on the outcome variable; child age, sex, race, home language, and teacher language were accounted for as covariates in the linear models of significant independent-dependent variable associations to control for potential effects that these observable variables may have on the association of the predictors on language development. Students' fall scores on the IGDI Picture Naming subtest or TOLD P-3 Grammatic Understanding subtest were also controlled when estimating full models for change in oral language or change in syntax and grammatic understanding, respectively, in order to account for the different entry-level skills students started the school year with. Controlling for the student- and classroom-level covariates allowed for better understanding as to whether an independent variable, or predictor, was significantly related to the outcome variable above and beyond contributions from of the covariates considered.

2. Does social competency mediate the effect of classroom supports, namely access to literacy materials, classroom organization, and teacher-child interactions and opportunities, on child language growth, specifically in oral language and understanding syntax and grammar?

The mediational model investigated was a 2-1-1 model, where the independent variables (i.e., classroom-level support) were measured at the group, or classroom, level (i.e., level 2), and the mediation variable (i.e., change in social competency as measured by the difference between fall and spring teacher ratings on the CLIO Social Competency Scale) and outcome variables (i.e., change in oral language, and syntax and grammatic understanding) were measured at the individual level (i.e., level 1). Growth in social competency over the preschool year mediated

the relationship between classroom level supports and students' language growth *if* the statistical analyses indicated: (a) the independent variable(s) (X) significantly predicted the dependent variable(s) (Y) as estimated by the total effect path (path c); (b) the independent variable(s) (X) significantly predicted the hypothesized mediating variable (M) as estimated by path a; and (c) the direct effects path (path c^1) indicated that, when accounting for the mediator (M), the independent variable's association with the outcome variable is significantly reduced or equaled to zero as evidence of partial or full mediating influence on the independent variable(s) (X) predictiveness on the dependent variable(s) (Y) (Baron & Kenny, 1986; Zhang, Zyphur, & Preacher, 2009; MacKinnon, 2011) . The statistical analyses used to explore meditational effects of change in social competency matched the analyses used to address research question 1. In other words, mediation was investigated using HLM or simple linear regression if HLM or simple linear regression was used to test for an independent variable's predictive association with the dependent variable. Figure 3 illustrates the multilevel conceptual model used to organize the steps taken in conducting HLM or simple linear regression modeling to determine if there was any noticeable meditational influencing of change in social competency. Child- and classroom-level covariates were controlled for as appropriate in estimating the various paths (a, c, and c^1). Because traditional methods for determining mediation (e.g., Baron & Kenny, 1986) do not take into consideration clustered or nested data designs and HLM is not the ideal method for mediation testing due to the potential for conflation of indirect mediation effects (Preacher, Zyphur, & Zhang, 2010), multilevel structural equation modeling was considered to formally calculate the indirect mediation effects if the estimations from paths c, a, and c^1 indicated potential mediation influence.

Figure 3: Model for Testing Social Competency Mediating the Effects of Classroom Supports on Child Language Growth (Research Question 2).



CHAPTER THREE: RESULTS

This chapter includes a review of descriptive statistics of the study sample, followed by a missing value analysis to correct for a significant amount of missing data. Next, results from the factor analysis are presented to define the study independent variables. Finally, hierarchical linear modeling and ordinary least squares (OLS) are discussed in terms of the predictiveness of independent variables (i.e., classroom level supports) on the dependent variables (i.e., change in children's language ability), with and without accounting the influences of covariate and mediating variables.

The following analyses were conducted on a secured dataset, governed by policies of the United States Department of Education and the Institute for Education Sciences (IES). Licensees of the dataset are required to honor participants' confidentiality by rounding all sample size numbers, frequency counts, minimum numbers, maximum numbers, and degrees of freedom to the nearest ten. The study results presented here are consistent with IES confidentiality requirements and have been approved for distribution by IES. All statistics were performed using SPSS Statistics version 22.0.

Descriptive statistics indicated missing data across child outcome data (i.e., scores on the CLIO Social Competency Scale, IGDI Picture Naming subtest, and TOLD P-3 Grammatical Understanding subtest). The overall drop of 24% of the sample size due to listwise deletion of cases with missing data indicated a need for a missing values analysis.

Multiple Imputation

To investigate the extent of missing data, missing values analysis was pursued. Results from this analysis showed that 46 participants were missing fall and/or spring language outcome scores, yielding a relatively high percent of missing data ($\gamma=.24$). The pattern of missing data appeared to be at random (MAR). Multiple imputation was conducted to address the issue of missing data. Multiple imputation (MI) is a complex method that involves inserting plausible values for each imputation and using all generated data to compute a final, or pooled, dataset. It yields accurate standard errors of parameter estimates compared to single imputed dataset methods, such as Expectation Maximization, making MI a highly recommended method of handling missing data (Schlomer, Bauman, & Card, 2010).

Although missing data appeared to be at random, an automatic imputation method was selected to scan the data and determine the most appropriate imputation method to use. The Markov Chain Monte Carlo (MCMC) method was ultimately used to compute new values for the missing values. This method generates predictions of values for each iteration based on the sample data available for a variable, and this process continues until the maximum iterations have been reached, concluding with a pooled dataset with original and estimated values.

According to multiple imputation theory, three to five imputations are adequate. Based on Graham, Olchowski, and Gilreath (2007), the recommended number of imputations (m) to yield minimum power falloff for the amount of missing data in this dataset is $m=20$. The only constraint placed on the imputed values was that rounding was to occur to the nearest integer to reflect the natural rounding that originally occurred in reporting students language and social competency scores.

Hierarchical Linear Modeling

Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, and multicollinearity. To investigate the magnitude of predictability of classroom level support on child language outcomes (research question 1), six two-level hierarchical linear modeling (HLM) models were estimated (three models per outcome variable). Hierarchical linear modeling was also used to investigate whether change in social competency mediated the relationship between classroom level supports and children's change in oral language and syntax and grammatic understanding. Although nesting occurred at three levels (i.e., students are nested within classrooms, which are nested within projects), only variables at the first level (i.e., student) and second level (i.e., classroom identification) were actually studied. The highest level variable of collected data, classroom identification, was entered as the subject variable.

Covariate variables were entered as predictor variables in some models and differed slightly depending on which outcome variable model was being analyzed. Therefore, results from the HLM are presented in sections by the outcome variables that were analyzed. Maximum likelihood estimation was selected as the appropriate parameter method given the nested nature of the data being compared. The subject variable, classroom identification, also considered as the grouping variable, was entered as a random factor. Sample size, minimum, maximum, ranges, and degrees of freedom were subject to rounding to nearest ten, with numbers below 5 recorded as <10.

Change in oral language.

First, a one-way ANOVA model with no predictor variables (i.e., null model) was estimated to determine the variance between- and within-groups group for change in oral language and whether the variance was large enough to indicate substantial variance due to grouping. The intra-class coefficient (ICC) was calculated and indicated that approximately 14%

of variability in change of oral language existed between classrooms, with within-group variance being statistically significant (coefficient [β] =20.38, standard error [SE]=2.44, p-value [p]<.001) and between-group differences not significant (β =3.19, SE =1.93, p =.10). To avoid poor estimation of standard errors and increased risk of Type 1 error that may result in using traditional regression methods, such as ordinary least squares regression, multilevel modeling was determined the appropriate analytical procedure to account for the variances observed at each level of grouping when assessing the predictive association between the classroom-level supports and change in oral language. The overall mean for change in oral language in the sample (i.e., intercept estimate) when no predictor variables were controlled for was 3.35 points on the IGDI Picture Naming subtest.

Single predictor (i.e., independent-variables only) models were then run for each of the independent classroom support variables and change in oral language to address research questions 1.1a-1.3a, which questioned whether classroom level supports predict child oral language growth. Access to literacy materials (β =.38, SE =.54, p =.48) and teacher-child interactions and opportunities (β =.14, SE =.52, p =.79) were found to have no significant associations with change in oral language during the preschool year. In other words, the data did not support the presence of positive, predictive relationships between the two pairs of variables as posed in hypotheses 1.1a and 1.3a. However, results supported hypothesis 1.2a, that classroom organization has a positive, significant predictive relationship with change in oral language (β =.94, SE =.48, p <.05). The intercept estimate for this model was 3.33, indicating the mean change in oral language in the sample when classroom organization is controlled. The ICC for this significant model suggested that 9% of the total variability observed in change of oral

language was due to clustering when controlling only for classroom organization (within-group variance: $\beta = 20.54$, $SE = 2.47$, $p < .001$; between-group variance: $\beta = 2.14$, $SE = 1.71$, $p = .21$).

A full model with all predictors was estimated to see if the independent variable was significantly related to change in oral language above and beyond the contribution of all considered covariates. Covariates controlled for in the model and their dummy coding included child age, sex (female=0, male=1), race (non-Hispanic=0, Hispanic=1), home language (only English spoken=0, Foreign language but may include English=1), teacher language (only English spoken=0, English and Foreign language=1), and fall IGDI Picture Naming subtest score to control for students' baseline oral language skills from which they could make growth. The majority of predictors were found non-significant. The intercept indicated an overall mean of 1.86 points of increase in change in oral language for the sample when all predictors were accounted for. Even with all the covariates being controlled, classroom organization continued to have a significant relationship with children's oral language growth ($\beta = .94$, $SE = .39$, $p < .05$). With each unit of increase of rating for classroom organization, students demonstrated .94 points positive change in their oral language performance between fall and spring administrations of the IGDI Picture Naming subtest. As one may expect, the fall IGDI Picture Naming subtest predictor used to consider the baseline oral language skills students' presented with at the beginning of the year was significantly and negatively related to their change in oral language skills over the year ($\beta = -0.25$, $SE = .05$, $p < .001$). Students with stronger skills in the beginning of the year made less growth, whereas students that entered the school year with weaker oral language skills had more room to make growth. The ICC for this full model is .04, indicating that with all predictors controlled for, only 4% of variance in students' growth in oral language

skills were between classrooms (within-classroom variance: $\beta = 18.38$, $SE = 2.15$, $p < .001$; between-classroom variance: $\beta = .68$, $SE = 1.14$, $p = .55$).

Because the majority of covariates were insignificantly associated with change in oral language, a final model was proposed that included only the independent variable, classroom organization, and the fall IGDI Picture Naming subtest score covariate as predictors. This model yielded similar predictor results as the full model (classroom organization: $\beta = .99$, $SE = .39$, $p < .05$; fall IGDI Picture Naming subtest: $\beta = -0.20$, $SE = .04$, $p < .001$), including an ICC of .04 (within-class variance: $\beta = 18.69$, $SE = 2.17$, $p < .01$; between-class variance: $\beta = .79$, $SE = 1.08$, $p = .47$). Given that the final model did not better explain above and beyond what the full model estimated, the full model with all predictors included is considered to be a better estimate of the positive and significant predictive association between classroom organization and children's change in oral language skills while taking into account child and classroom level variables. Based on results from the single predictor model and full model, child- and classroom-level variables have limited influences on the predictive relationship of classroom organization and change in oral language, and thus hypothesis 1.2a is supported. In other words, classroom organization strongly illustrated a significant, positive predictive association with child oral language growth as measured by the IGDI Picture Naming subtest above the contributions of the covariates considered.

The first step in testing for mediation is to determine if there is a significant relationship between predictor and outcome variables of which there is potential for a mediating variable to partially or fully explain that relationship. Given that there was a significant association between classroom organization and change in oral language skills, there was the opportunity to investigate if change in social competency significantly and positively mediates this relationship,

as proposed in research hypotheses 2.2a. The full model above represents path c in mediation modeling, which takes into account total effects of predictors on the outcome variable, without accounting for the influence of the suggested mediating variable.

The next required component in mediation analysis was to estimate path a and determine if the independent variable is significantly associated with the mediating variable; without significant evidence, it is unlikely that the mediating variable of interest could impact the predictor-outcome relationship under review. Classroom organization and fall social competency scores were the only predictors included in the HLM to gain a clear picture as to whether the growth students made in the area of social competency when accounting for their baseline (i.e., fall social competency scores) was significantly predicted by classroom organization. While fall social competency scores significantly predicted the change in social competency skills during the school year ($\beta = -0.25$, $SE = .05$, $p < .001$), such that students rated with high social competency at the beginning of the year made less growth over the year, classroom organization did not appear to associate with children's growth in social competency ($\beta = -0.81$, $SE = .56$, $p = .15$). In fact, with a unit increase in classroom organization, students experienced a slight decline in their growth in social competency. The absence of classroom organization significantly predicting change in social competency along path a indicated that change in social competency could not mediate, or help explain the predictive relationship between classroom organization and growth in oral language. No evidence supports the positive, significant mediation effects proposed in hypothesis 2.2a.

If path a was significant, then path c¹ would be estimated to see the full or partial level influence the mediator had on the independent variable predicting the outcome variable. The path c¹ model resembles the full model (or path c model) explained earlier but also controls for the

mediator, change in social competency, and the covariate, fall social competency score, to see if growth in social competency significantly reduces or brings the classroom organization coefficient estimate to zero. While results from estimating path a does not warrant further mediation testing, path c^1 was estimated as a sensitivity check to explore if change in social competency possibly had partial or full mediating influences on classroom organization predicting change in oral language. With and without the covariates that did not have significant correlations with the outcome variable (i.e., age, sex, race, home language, and school language), change in social competency did not reduce the association of classroom organization with change in oral language (with all covariates: $\beta = .93$, $SE=.39$, $p<.05$; without insignificant covariates: $\beta = .97$, $SE=.40$, $p<.05$), and did not have a significant correlation with the change in oral language (with all covariates: $\beta = .02$, $SE=.06$, $p=.36$; without insignificant covariates: $\beta=.03$, $SE=.06$, $p=.64$). For this study, there was weak evidence to suggest that change in social competency served a mediating role, and therefore formal mediation testing was not pursued at this time.

Change in syntax and grammatic understanding.

A null model was first estimated to determine the variance between- and within-groups for change in syntax and grammatic understanding and whether the variance was large enough to indicate substantial variance due to grouping. The intercept, or average growth made in syntax and grammatic understanding as calculated by the difference between fall and spring performance of the TOLD P-3 Grammatic Understanding subtest, equated to 2.38 points. The intra-class coefficient (ICC) was calculated and indicated that approximately 1% of variability in change of syntax and grammatic understanding existed between classrooms. Because this did not suggest that clustering of students into classrooms yielded notable differences between

students due to classroom grouping, it was not necessary to apply HLM to investigate whether classroom level supports predicted child language growth. Simple linear regression modeling, such as OLS, sufficed as the appropriate analytic procedure for estimating the predictive relationship between classroom-level supports and change in grammar understanding. However, as a sensitivity test, HLM was also conducted. In this section, results from HLM used to address research question 1 in regards to the outcome variable, change in syntax and grammatic understanding, is reported.

Single predictor models were then run for each of the independent classroom support variables and change in syntax and grammatic understanding to address research questions 1.1b-1.3b, which questioned whether classroom level supports predict child syntax and grammatic understanding growth. The intercepts generated by the independent and dependent variable only models remained consistent with the intercepts indicated in the null model (i.e., 2.38). Access to literacy materials ($\beta = .51, SE = .40, p = .20$), classroom organization ($\beta = -0.40, SE = .38, p = .27$), and teacher-child interactions and opportunities ($\beta = -0.02, SE = .39, p = .95$) were found to have no significant associations with change in oral language during the sample's preschool year. Thus, the data did not support the presence of positive, predictive relationships between the three classroom-level supports and change in syntax and grammatic understanding as posited in hypotheses 1.1b and 1.3b.

Ordinary Least Squares

Because there was no evidence that children differed significantly between classrooms with regards to their change in syntax and grammatic understanding, HLM was not necessary to conduct in order to address the predictive relationships presented in hypotheses 1.1b-1.3b. Theoretically, OLS would suffice in investigating the relationship between classroom-level

supports and change in grammar understanding. Single-predictor models were run, and determined nearly identical results as provided by the HLM conducted with the same set of variables. When controlling only for the independent variables one at a time, the intercepts for all models was 2.39, and access to literacy materials ($\beta = .51, SE = .40, p = .20$), classroom organization ($\beta = -0.40, SE = .37, p = .27$), and teacher-child interactions and opportunities ($\beta = -0.02, SE = .39, p = .96$) were found to have no significant associations with change in syntax and grammatic understanding. Therefore, there was no evidence to support the significant and positive predictive relationships between the classroom level supports and change in syntax and grammatic understanding. Without a significant correlation between the independent and dependent variables, mediation testing was not warranted for this outcome variable.

CHAPTER FOUR: DISCUSSION

Overview

The present study evolved from considering the extensive data set associated with the Classroom Literacy Interventions and Outcomes in Even Start (CLIO) study (Judkins et al., 2008). The researcher determined quality classroom level supports present in the Even Start classrooms, and tested whether these supports predicted the students' language development over the school year. Additionally, the study addressed whether growth in social competency mediated this association. Based on empirical studies, it was hypothesized that these relationships would be significant and positive. Results from the hierarchical linear modeling (HLM), or multi-leveling modeling, verified only that classroom organization, prior to and after adjusting for covariates, influenced child oral language growth. Data from both HLM and ordinary least squares (OLS) indicated that the remainder of the classroom-level supports did not significantly predicted child growth in oral language and syntax and grammatic understanding. Mediation paths were estimated, using HLM, for classroom organization with change in oral language growth, but suggested no mediational influence from students' change in social competency. Therefore, formal mediation testing was not warranted at this time.

Study Findings

The purpose of this study was to investigate the association between classroom level supports and student change in language skills over the preschool year (research questions 1.1-1.3) and the presence of mediation effect of change in social competency on the associational

relationships tested in research questions 1.1-1.3 (research questions 2.1-2.3). An exploratory factor analysis (EFA) identified three unique factors among the classroom quality observational data, for which each student received a factor score per factor. The factor scores were used as independent variables in HLM and OLS to estimate the association between the classroom supports on child language growth. Finally, HLM was used to explore the presence of direct and indirect mediation effects of change in social competency. The following sections review the study findings that specifically address each research question.

Predicting change in child language.

The focus of this study was on understanding which classroom variables promote student success. The CLIO study included a large sample of preschool students from low-literacy, low-income families, which offers a unique opportunity to see what students are experiencing early on in their educational careers and how those experiences prepare them for the future. Decades of research have supported the benefits to early educational programs with regards to exposing children to enriching learning and social opportunities, particularly at-risk children. Classroom level supports, such as an environment that provides an accessible and supportive learning experience, instructional activities, and positive-student relationships are components of the early classroom setting that promotes language and literacy growth for at-risk students.

To date, literature emphasizes that two overarching components in schools, which include structural and process supports, are essential in order to promote student academic and socioemotional growth. Structural supports may include program characteristics, such as program curricula, teacher-student ratio, and teacher credentials, as well as components that were investigated in the current study, namely students' access to literacy materials and classroom organization (Neuman & Roskos, 1997; Wasik & Bond, 2001; Pianta & Hamre, 2009). They

enhance students learning and development as they allow for teachers to more easily support students' individual needs, and provides students with a structured place to independently explore brain stimulating materials and be engaging learners and social beings. Process supports consist of instructional and relational interactions between teacher and students, which allow for formal and informal learning experiences, emotional support, and more novel opportunities that in turn promote language, literacy, and socioemotional skills (Dickinson, & Smith, 1994; Whitehurst & Lonigan, 1998; Howes et al., 2008; Justice, Mashburn, Hamre, & Pianta, 2008; Mashburn et al., 2008; National Early Literacy Panel [NELP], 2008; Curby et al., 2009; Pianta & Hamre, 2009).

Past research and reviews of empirical work suggest there is a need for studies that focus on using observational tools that assess specific components, rather than global measures, of classroom quality to gain knowledge about what are the most effective strategies in creating early childhood classrooms with a stimulating environment and interactions. In an effort to contribute to the research database on specific preschool classroom practices that promote child development, the first step of this study was to extract items from a classroom observation tool, the Observation Measures of Language and Literacy Instruction (OMLIT; Goodson, Layzer, Smith, & Rindizius, 2006), on the basis of how well they aligned with empirical data on structural and process supports. All nine items that were eventually selected for consideration were rated by trained professionals observing classrooms, providing three-point (on the OMLIT Classroom Literacy Opportunities Checklist [CLOC]) or five-point (on the OMLIT Quality of Instruction in Language and Literacy [QUILL]) quality ratings, with higher rating indicating higher-level quality. An exploratory factor analysis helped organize these classroom quality

observation items into constructs or factors on which each student was given a score, depending on their class' standing on a factor.

Based on the composition of the items per factors, the factors were labeled as “access to literacy materials”, “classroom organization”, and “teacher-child interactions and opportunities”. Access to literacy materials as a factor consisted of the following items from the CLOC measure: “there are toys and/or materials accessible to children that include words”, “books accessible to children in the classroom that present primarily factual information or non-fiction subject matter”, and “there are books and/or other literacy materials in the dramatic play area.” The classroom organization factor included the following CLOC items: “the room is arranged in distinct centers for different activities” and “the classroom layout allows children to choose materials and participate in activities independently.” Finally, teacher-child interactions and opportunities consisted of the following QUILL items as part of its factor: “opportunities to engage in language and literacy activities”, “opportunities/encouragement of oral language to communicate ideas and thoughts”, and “attention to/promotion of letter/word knowledge.” These three classroom level support factors were thus considered the independent variables for the study.

Two, two-level hierarchical, or mixed, linear models were estimated and OLS was used to determine if the identified classroom level supports—namely, access to literacy materials, classroom organization, and teacher-child interactions and opportunities—significantly predicted child growth in the areas of oral language growth and syntax and grammatical understanding (research questions 1.1-1.3). First, it was hypothesized that access to literacy materials would be a significant positive predictor of child oral language growth (hypothesis 1.1a), as well as a significant positive predictor of child language growth in syntax and grammatic understanding

(hypothesis 1.1b). Second, classroom organization was hypothesized to act as a significant positive predictor of child oral language growth (hypothesis 1.2a) and as a significant positive predictor of child language growth in understanding syntax and grammar (hypothesis 1.2b). Finally, it was hypothesized that teacher-child interactions and opportunities would significantly and positively predict child oral language growth (hypothesis 1.3a), as well as significantly and positively predict child language growth in understanding syntax and grammar (hypothesis 1.3b).

Predictive associations were measured by estimating the relationship between individual classroom-level supports and change in children's language skills. For significant associations, covariates were entered into the model to take into account any confounding effect they may have on the independent variable's true relationship with the outcome variable. Covariates entered included child age, sex, race, home language, teacher language, and fall oral language score (IGDI Picture Naming subtest score) or fall understanding syntax and grammar score (TOLD P-3 Grammatical Understanding subtest score), depending on the language outcome variable in the model.

Only one model indicated a significant predictive relationship between classroom organization and change in oral language. Therefore, only hypothesis 1.2a was supported. In general, with each unit increase in rating for classroom organization, based on factor scores for quality of classroom arrangement in distinct centers for various activities and classroom layout that promotes students' independent participation in activities, students demonstrated a .94 to .99 point (classroom organization coefficients from full to final models examined, respectively) growth in their oral language skills, specifically in their vocabulary knowledge. Interestingly, sex, age, race (Hispanic versus non-Hispanic), home language (English only versus Foreign with or without English spoken), and teacher language (English only versus English and Foreign

language) did not have an impact on the association with change in oral language skills evidenced during a year of preschool. So, why might classroom organization, as defined in this study by the number of distinct centers and number of choices presented to children to independently interact with materials and participate in a range of activities, yield an increase in expressive vocabulary knowledge, as measured by the IGDI Picture Naming subtest? It is possible that classrooms involved with this study with higher quality classroom organization had centers, materials, and activity opportunities that were clearly labeled and, thus, provided students with increased vocabulary exposure that were relevant and applicable to students' daily school experiences. Vocabulary, then, could have been reinforced through spoken and written language frequently in daily activities. The use, reinforcement, and teaching of vocabulary is much more concrete compared to teaching students' receptive language skills and other, more complex early language and reading skills. The question then remains why significant findings were not found with the other independent variables, access to literacy materials and teacher-child interactions and opportunities?

The lack of more significant findings was surprising, given the amount of research supporting the statistically significant influence of structural and process supports within classrooms, such as those selected as independent variables in this study. Nonetheless, the research behind the implications of specific classroom level supports on preschool child outcomes is fairly new, and results have thus far indicated positive but small correlations between high quality preschool programs and child language, social, and intellectual development (e.g., Howes et al., 2008; Peisner-Feinberg et. al., 2001). A potential explanation for the minimal statistically significant association between classroom level supports and child language growth during the preschool year (with the exception of classroom organization with

change in oral language) is that the language measures used in the present study (i.e., IGDI Picture Naming and TOLD P-3 Grammatical Understanding subtests) were administered at two separate time-points approximately four months apart. This situation did not provide a lot of time for language maturation to occur and make predictions of what factors (i.e., classroom level supports) may be promoting such maturation outside of typical developmental patterns.

As the case made in Chapter 2, stronger consensus is needed for what classroom observation tool(s) supply the type of information needed in gauging true classroom quality and predictors of child growth. The lack of significant findings for access to literacy materials and teacher-child interactions and opportunities, for which there is a vast amount of data to support its impact on children's development, may have been due to vagueness in the OMLIT CLOC and QUILL scoring procedures. For example, the qualitative description for a score of three on the QUILL includes that activities and teacher interactions occurred "sometimes" and "sometimes not." While the CLOC also includes some vague descriptors in its scoring, it is much easier to take inventory of physical attributes of a classroom rather than teacher and child behavior. The minimal range in Likert scores and poor explicitness of qualitative description of scores may have resulted in less accurate data being documented compared to actual data.

Mediation effects of change in social competency.

Based on results used to address research question 1, only one significant relationship-- between classroom organization and change in oral language-- warranted further investigation to see if change in social competency mediated the relationship. Given that notable variance was present due to the nested nature of the data, hierarchical linear modeling rather than linear regression modeling was used to estimate the various paths c , a , and c^1 to gauge whether there was evidence to suspect change in social competency to have mediating effects on the

relationship between classroom organization and change in oral language. If evidence indicated that there was a significant association between the independent variable and mediating variable, and that when accounting for the mediator, the association of the independent variable with the dependent variable is greatly reduced, then formal mediation testing using multilevel structural equation modeling would have been justified. However, there was no support for research question hypotheses 2.1-2.3 to indicate that change in social competence had any influential power in the predictive relationship of classroom organization and change in oral language.

The mediator, change in social competency, was regressed only on one classroom-level support variable, classroom organization. While there was no significant association between the two variables, it would be helpful to have investigated if the two other independent variables significantly predicted change in social competency. Based on the current study, only a small indication was made for how change in social competency does not belong in modeling classroom-level supports and child language growth. The structure of this current study did not focus on how change in social competency may play some other type of influence on classroom supports on child outcomes. The scope of this study was more limited, and thus, presents with limitations and suggestions for future research.

Limitations

Several limitations of this study need to be considered to better understand the results that were obtained as well as to guide future research in this area. First, the use of a large, previously gathered dataset for this study yielded many challenges. The variables and values analyzed were restricted to only the data provided by the CLIO study researchers. While the CLIO study examined a multitude of child, family, and classroom data, the current study focused on child and classroom data only. One limitation to this study is that the current researcher chose to avoid

the negative effects that longitudinal data presents, such as attrition and unknown effects of time on teacher status and teacher strategies, and the considerations that must be made when including intervention groups, and restricted the current study sample to include one-year of data from business-as-usual classrooms. This resulted in a small rounded sample size (n=190). Although the sample size did not invalidate any statistical analyses, a larger sample size would have increased the precision of the data results. Also, limiting the study sample to a one-year snapshot of business-as-usual classrooms and not including multiple-year data as well as intervention classrooms restricted the range of observational data that was available to analyze. Including these data, however, would have introduced other complications with the data analysis and conclusions. The observations from the current study sample, all of which were Even Start Family Literacy Programs, cannot be directly generalized to the classroom supports and child language growth observed in many preschool classrooms serving low-income, low-literacy children because Even Start often served the most needy children and families in a community who had lower educational levels than the parents of Head Start children.

Being confined to only using the data available from the CLIO study, rather than conducting an original study, also limited the types of data that could be used to, for example, creating classroom level support constructs and measures of student language growth. Several language measures that are well-known and frequently used for research that were included in the CLIO study, such as the Peabody Picture Vocabulary Test, did not have fall and spring raw score data reported in the dataset. Instead, analysis variables had been created for several language outcome measures. Documentation of how the researchers created these new outcomes scores were not available by request. Only two student language measures (i.e., IGDI Picture Naming and TOLD P-3 Grammatical Understanding subtests) had raw data reported for both fall

and spring semesters. Thus, the present study had to limit its analysis of child language growth to computing change score for two subtests versus potentially utilizing the battery of language measures administered in the CLIO study. Although the term “language growth” is used in this study, the actual competencies measured (i.e., expressive vocabulary and receptive language) were not comprehensive to assess many language skills students develop during preschool. The amount of time between fall and spring IGDI Picture Naming and TOLD P-3 Grammatical Understanding subtests administrations were fairly close in time (i.e., average of four months between testing), minimizing the degree of change to be computed and with which significant associations between classroom level supports could be determined. Thus, because this study did not have data collected over a full school year the opportunity for the hypothesized variables to influence outcomes was limited, making it difficult to determine how classroom-level supports significantly impacted preschool language development over and beyond what is typically expected for young children.

Another limitation in this study came when planning what classroom observation data would be utilized for creating classroom support constructs to act as the study’s predictor variables. Significant portions of the majority of OMLIT measures that have substantial empirical data support, such as the SNAP measure of structural and process support data on use of literacy and language across classroom activities, had missing data. Thus, whole measures had to be excluded from consideration. Though empirical evidence and theoretical consideration supported the CLOC and QUILL items used in this study, the few number of items available to contribute to the factor analysis reduced the potential for strong factors to be extracted and the possibility for significant findings when using the factors as independent variables. When examining the items or variables that could be used in creating the study independent (i.e.,

predictor) variables, the Kaiser-Meyer-Olkin (KMO) statistic, a measure of sampling adequacy, was used to compare the correlations and partial correlations of the items considered in the exploratory factor analysis (EFA) to determine if the items could be efficiently factored. In this study, the KMO was .59, which is at the cusp of acceptable sampling (minimum suggested is .5, but recommended .6) to conduct a factor analysis (Kaiser, 1974; Tabachnick & Fidell, 2007). It would have required adding items or variables in the factor analysis to increase the reliability of factoring the observational data into strong constructs. This was not an option available to the researcher due to the nature of using a preexisting data set with a large amount of missing data.

Although there is research to support the importance of structural and process supports within the classroom setting, more studies emphasize the power of process supports. Due to the limited classroom observation items considered for the EFA, two structural support and only one process support constructs were extracted. The limited number of items (i.e., three) included in the process support construct, referred to as teacher-child interactions and opportunities, and lack of additional process support constructs reduced the likelihood of significant associations to be found between teacher-child interactions and opportunities and child language outcomes. One structural support factor, access to literacy materials, consisted of four items with one item (CLOC 37: “There are books and/or other literacy materials in the dramatic play area.”) having a relatively lower correlation (.34) with the other items within the factor (e.g., less than .4 or greater as recommended by Brown, 2006). While the researcher deemed it appropriate to include the one item in the construct based on its theoretical relevance to the construct, future studies should conduct further analysis and adaptations to ensure strong convergent validity within a construct. Further, the construct focused on classroom organization included only two items, which is below the recommendation of creating constructs with three or more items (Fabrigar, Wegener,

MacCallum, & Strahan, 1999; Costello & Osborne, 2005). The only predictive relationship determined in this study was that classroom organization was significantly associated with oral language growth, as represented by change scores between students' fall and spring performance on the IGDI Picture Naming subtest, during the preschool year. Having only two items for the classroom organization factor (i.e., "the room is arranged in distinct centers for different activities" and "the classroom layout allows children to choose materials and participate in activities independently") means caution should be exercised in assuming this relationship would hold when additional variables are considered.

An additional limitation to this study is that while paths c , a , and c^1 were estimated using HLM to determine if change in social competency mediated the relationship between classroom organization and change in oral language skills, more sophisticated methods (e.g., multilevel modeling mediation macros) were not implemented at the time of this study to incorporate to finalize mediation testing. In SPSS, it is difficult to effectively calculate the standard error when conducting mediation analysis using multilevel modeling, and typically produces conflated or biased estimates of indirect mediation effects. Multilevel structural equation modeling would have been a more formal and accurate procedure for testing for mediation as it would have treated the grouping variable of the individual, or level 1, variables as latent, thus addressing the weakness with HLM estimating indirect mediation effects (Preacher, Zhang, & Zyphur, 2010). Results from the HLM conducted in the current study suggest that change in social competency does not mediate the relationship between classroom organization and change in oral language; however, more formal methods for testing mediation are needed in the future to accurately make this conclusion.

Finally, this study attempted to investigate how students' social skills development may explain the relationship between child language development based on structural and process supports within the classroom setting. At this point, there is limited evidence from the study data that social competency predicts language growth, as well as that language skills predict social competency. Development of language and social skills have been proposed to occur more simultaneously as initiated by and strengthened through adults and peer interactions (Garfield, Peterson, & Perry, 2001). For this study, the opinion was formed that growth in social competency would yield increased language skill growth. While this idea was based on research and professional opinion, there was not a substantially strong basis for why change in social competency was hypothesized as a mediating variable in predicting child language outcomes instead of child language growth mediating the predictive relationship between independent and dependent variables. There continues to be a need for understanding which variable, social competency or language development, plays a more significant role in predicting the other variable.

Implications and Future Directions

The current study utilized a large national dataset from the CLIO study, which investigated the impact of literacy-focused curricula implemented in Even Start programs on literacy gains and literacy behaviors by preschoolers and their parents (Judkins et al., 2008). Data extracted from the CLIO study for the present study were selected in an effort to test the impact of classroom level structural and process supports, specifically access to literacy materials, classroom organization, and teacher-language interactions and opportunities, on predicting oral language and understanding of syntax and grammar growth during the preschool year, accounting for change in students' social competency as a potential mediating variable.

In recent years, research has focused on the concept of structural and process supports being critical components to successful classrooms. While research has examined the broad levels of classroom supports, studies have not consistently investigated specific behaviors, characteristics, or procedures that occur within the classroom that compose the classroom level supports. Instead, there is a thin layer of knowledge regarding many different variables that contribute significantly to classroom quality. In completing the present study, it was concluded that future studies should first clarify and specify what is already known about our early childhood education programs so that we can provide tailored, effective intervention recommendations for early learning programs. The predictive relationship between classroom organization and students' oral language growth suggests that a classroom with distinct centers that are accessible to children and invite children to move about the area present children with more opportunities to interact and strengthen their oral language skills, resulting in an increase in their vocabulary.

Although significant correlations were not found for child- and classroom-level covariates, with exception of baseline scores such as fall language and fall social competency scores, future studies still warrant consideration of confounding variables. While the covariates did not demonstrate great influence on children's growth in their oral language skills as predicted by classroom organization, the impact of the covariates for the five other models were not investigated due to the insignificant predictor-outcome variable relationships. It is difficult to say, then, what influential trends the child- and classroom-level variables may have on classroom-level supports predicting child language outcomes. It is possible that the classroom information incorporated in each classroom support construct created for the purpose of this study did not accurately reflect the range of supports in the classroom, thus may not have

provided a good opportunity to separate out how student and classroom level characteristics may have influenced child outcomes.

There is still information to be learned regarding how early childhood programs can implement specific practices to support the development of low-income, low-literacy families, particularly those that are English language learners (ELL). Future advancements in the field of educational research should aim to design studies that can identify the types and level of intensity certain supports should be implemented in the preschool classroom to better support the growing population of ELL students (National Task Force on Early Childhood Education for Hispanics, 2007).

Finally, the United States is in need of more higher-quality, affordable early education programs. This need results from the increasing trend of family households needing two incomes in order to live comfortably, thus leaving no parent at home to care for their child. Additionally, the increase in immigration, particularly from Hispanic countries, had increased the number of young, ELL students that could benefit from early schooling to promote school readiness by the time they enter grade school. Continued research efforts are strongly advised to create better classroom observation and evaluation tools that can inform evidence-based practices for designing much needed high quality, affordable early learning.

In sum, this study has brought to light the need for more concise, user-friendly, and interpretable classroom observation tools that are grounded in theoretical and empirical works. The data presented in this report indicated that only one type of structural support, classroom organization, significantly predicted child oral language growth. The other structural support, access to literacy materials, and a process support, teacher-child interactions and opportunities, did not predict child language growth. It is recommended that succeeding studies focus more

specifically on practices that create general classroom level supports, so that additional evidence can be obtained for how teachers can promote certain classroom structures, activities, and interactions with students can be made.

**APPENDIX: OBSERVATION MEASURES OF LANGUAGE AND LITERACY
INSTRUCTION (OMLIT)**



Observation Booklet Spring 2006

Observation Measures of Language and Literacy Instruction (OMLIT)

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Measures developed as part of the Even Start Classroom Literacy Interventions and Outcomes (CLIO) Study, under contract ED-01-CO-0120, as administered by the Institute of Education Sciences, U.S. Department of Education Prime contractor: Westat

For information about the OMLIT measures,
Contact Tracy Rindzius, U.S. Dept of Education
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Early Childhood Education Classroom Description

Part 1: Identifying Information

Observer: _____ Date of Observation ____/____/____
 Project/ Classroom: _____ ID# _____
 Time Observation Began ____:____ am pm
 Time Observation Ended ____:____ am pm

Part 2: Staff List (teachers/assistants/regular staff)

	Staff Name	Staff Role	Staff ID#
(1)	_____ (1)	_____	_____ (1)
(2)	_____ (2)	_____	_____ (2)
(3)	_____ (3)	_____	_____ (3)
(4)	_____ (4)	_____	_____ (4)

Part 3: Classroom Context

Number of Children Enrolled (by age group)

_____ Infants & toddlers (under 3 yrs)	_____ %	English only
_____ Preschool (3 – 5 yrs)	_____ %	Spanish only/bilingual Spanish-English
_____ School age (6+ yrs)	_____ %	Other language (1) only /bilingual other language-English
_____ Total	_____ %	Specify language (1): _____
		Other language (2) only /bilingual other language-English
		Specify language (2): _____

Any Children with Diagnosed Special Needs?

Yes No Don't know

Classroom Theme: Any theme, topic, unit (for day, for week, for month) that class is focusing on?
 No theme
 Describe theme _____

Part 4: Post-Observation Summary

Language of Instruction of Staff: Select one response for each staff member present during observation

Staff (1) ID#	Staff (2) ID#	Staff (3) ID#	Staff (4) ID#
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- English only
- Spanish only
- Primarily English, some Spanish
- Primarily Spanish, some English
- English and Spanish equally
- Primarily English, another language (specify: _____)
- Primarily another language, some English (specify: _____)
- English and another language equally (specify: _____)
- English and multiple other languages (specify: _____)
- Other combination of languages (specify: _____)
- NA—not in classroom on day of observation

Language of Other Adults in Classroom: Select one response for the other adults that were present

- N/A:
 - No other adults in classroom
 - No ELL children in the class
 - Other adults in classroom speak only English
- Other adults in classroom speak additional language(s)
- Adults speak language(s) of *all* ELL groups in classroom
 - Adults speak language(s) of *some* but not all ELL groups in classroom
 - Adults speak languages of *none* of ELL groups in classroom

Other adults include adults who are not regular staff but who work with the children, such as parent volunteers and other center staff such as director. Do NOT include special visiting musicians, health care professionals, etc.

Indication that Observation Day Was Not Typical:

Describe any special events or unusual circumstances that indicate that the day was not typical: _____

No RAPs:

- No RAPs coded because no read-alouds occurred

Snapshot of Classroom Activities

Number	Children Present in Classroom
	Infants & toddlers (under 3 yrs old)
	Preschool (3 - 5 yrs old)
	School Age (5+ yrs old)
	Total Children (all ages)

Whole Group Activity (1-14)

Number	Staff Present in Classroom
	Teacher
	Assistant teacher/ Aide
	Other Adults Present in Classroom
	Parent dropping off/picking up/visiting
	Volunteer (parent or other)
	Other adult (visitor, other center staff)
	Total Adults (staff and other adults)

No Snapshot Coded:

RAP

Gross motor group activity

Other reason

Snapshot #1

Time: ____:____ am pm

Talk E S O None E S O None

Ad/C

C/C

Activity	# of Children and Adults in Activity			Literacy Resources/Activities	
	Children	Teachers	Aides	Other Adults	Describe
1 Reading/text/alphabet/ vocabulary (w/ print)					L
1a Alphabet/numerals					L
1b Sounds/singing					
1c Oral language/ vocabulary (no print)					
2 Emergent writing/ copying/tracing					L
3 Science/nature					
4 Math concepts/ attributes/colors					
5 Dramatic play					
6 Creative play					
7 Block play					
8 Fine motor play					
9 Sensory play					
10 Meeting time					
11 Games with rules					
12 TV/video/ computer					
13 Gross motor play					
14 Other activity					
15 Meals/routines/ management					
Not in class					Notes:

<p>1. Reading/ text/ vocabulary (with print) Looking at books or pictures, adult reading aloud, children reading together without adult, emergent reading (pretending to read), shared reading activities, listening to stories on audiocassette or CD. Teaching children new vocabulary words with print support for vocabulary (e.g., printed word).</p>	<p>6. Creative play Arts and crafts – creating visual art (painting, drawing, sculpting clay & play dough, cutting and pasting). Note: Always code PlayDoh® as “Creative play.” Music – instruments, formal and informal movement/dance activities.</p>	<p>13. Gross motor play Large muscle play – active outdoor play and indoor physical activity (tunnels, gymnastics). Include outdoor walks here (e.g., walking to and from a destination such as the library). Note: Code organized dance/ movement activity as “Creative play.”</p>
<p>1a. Alphabet/ numerals Recognizing letter/numeral forms, letter/sound correspondence. Always involves print.</p>	<p>7. Block play All building with blocks and other large building materials. Note: Once construction is done, and blocks are part of a completed pretend environment with cars, trucks, figures of people, code as “Dramatic play.”</p>	<p>14. Other activity Special activities that are not part of the regular activities on list, such as special event/side/missions, field trips, student assessments (e.g., school assembly, library, fire station, ice cream store). Note: The activity should be specified in the description box.</p>
<p>1b. Sounds/ singing Sounds of words with no print. All singing (may or may not have print, e.g., words of song displayed).</p>	<p>8. Fine motor play Manipulation of materials, such as puzzles, stringing beads, sewing cards, woodworking, LEGO®, Lincoln Logs, interconnecting building pieces.</p>	<p>15. Meals/ Routines/ Transitions/ Conversations/ Management/ No activity Meals/ snacks: Engaged in the act of eating a meal/snack, and/or meal/snack preparation and clean up. Routines/ transitions: Arriving/departing, napping/sleeping, physical care/ hygiene (including first aid, toileting), setting-up or cleaning-up of activities/materials, lining-up. Conversations/ management: Any talking or interaction between adult and child, between children, or between adults outside of a listed activity. Conversation may be positive or negative. Examples: adult managing a child’s behavior, comforting a child, or chatting. Children may be interacting in nonproductive ways.</p>
<p>1c. Oral language/ vocabulary Discussions, new concepts and vocabulary with either no print or no print emphasis.</p>	<p>9. Sensory play Manipulating sand, water, and textured materials such as beans, rice, shaving cream, where objective is learning about qualities of materials and not constructing a particular object.</p>	<p>Uninvolved/ administration: Not involved in any activity listed above and not interacting with another person. Child roaming aimlessly around classroom, having a tantrum, otherwise unengaged. Teacher/other adult doing administrative work, monitoring overall classroom activity from a distance.</p>
<p>2. Emergent writing/ copying/ tracing Children writing, includes pretend writing, scribbling, invented spelling. Child dictation to teacher. Tracing letter or number templates. Practice in correctly writing numerals/distinguishing numerals. Always involves print</p>	<p>10. Meeting time Routines or daily rituals as part of group or circle time. Includes activities such as calendar, day of the week, weather, the day’s activities, etc. Also includes discussions, such as sharing by children with questions from teacher, peers.</p>	<p>Not in class List children and staff who have left classroom and, if known, where they have gone. Do NOT include these children or staff in counts at top of form.</p>
<p>3. Scientific nature Formal and informal communication of science or nature. Science examples: astronomy, working with pets, collecting leaves, feeding pets, magnets, health & safety.</p>	<p>11. Games with rules Playing board games, card games, and video games (e.g., Nintendo, Game Boy, Play Station) that are not explicitly educational.</p>	
<p>4. Math concepts/ attributes/ colors Formal and informal communication of math concepts, attributes, or colors. Shapes, counting, measuring, patterns, amount. Identifying and matching non-geometric shapes (animals, familiar objects). Identifying and matching colors and color names.</p>	<p>12. TV/ video/ computer Watching commercial television programs, video tapes/DVDs or computer programs which may or may not be educational. Note: If activity involves computer, circle “Computer” in description box.</p>	
<p>5. Dramatic play Pretend or make-believe play, dress-up, playing with dolls, assigning roles, zooming cars and trucks. Note: Includes acting out stories/playing with puppets, figures of people/animals, and stuffed animals in pretend environments.</p>		

Classroom Literacy Instruction Profile MLIT-CLIP

No CLIP coded: <input type="checkbox"/> Gross motor group activity <input type="checkbox"/> Other reason	Context: <input type="checkbox"/> Child-selected activity <input type="checkbox"/> Teacher-selected activity <input type="checkbox"/> Meal/snack/routine	Staff ID# _____ CLIP #1 _____ <input type="checkbox"/> All Non-Literacy Activity (10 min.) Expected Start Time _____ am pm
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Other Staff in Literacy Events: _____

Staff ID _____ Column A: _____ Literacy Event #1 _____ Start _____ am pm

Staff ID _____ Column A: _____ End _____ am pm

Describe Literacy Event ("Title"):

A. Literacy Activity (circle one)		B. Literacy Knowledge Afforded (circle one)		C. Teacher's Instructional Style (circle one)		D. Text Support/Context for Literacy Instruction (circle all that apply, specify)		E. Number of Children in Activity w/Teacher (circle one E1-E4; E5 if applicable)		F. Child(ren)'s Talk (circle all that apply)		G. Teacher's Involvement With Child(ren) (circle all that apply)	
1	Teacher presents information or explains about print/text/ language, or Reads text to children (when not RAP)	1	Sounds —NO PRINT used— (phonological awareness)	1	Performing/presenting (child/ren) (listen/watch)	1	Whole/connected text (e.g., book, story)	1	One Child	1a	Talk with teacher, English, Spanish, or other	1a	Teacher (language, English, Spanish, or other language)
2	Teacher writing	2	Letters Shape & name; numerals; some sight words (e.g., child's own name) (orthographic awareness)	2	Directing child(ren)'s response (usually closed-ended questions/commands)	2	Isolated text—sentence, word, letter(s), numeral(s), or word part	2	Two children	2a	Talk with peers, English, Spanish, or other	2a	Focus of language: To group To one child To children in turn
3a	Focused oral language: Language games, rhymes, songs, storytelling [NOT songs for transitions or management]	3	Sounds & letters together —PRINT used— (phonological-orthographic awareness)	3	Making suggestions/ offering materials	3	Environmental print/ functional text	3	Small group (3-5 children)	3a	Talk with group, English, Spanish, or other	3	No teacher language
3b	Discussion, dialogue	4	Comprehension of text/ story	4	Observation/listening (teacher within 3 feet of child/ren); 1 or more minutes observing and/or listening)	4	TV/video	4	Large group (6+ children)	4	No child language		
3c	Circle time routines: weather, calendar, job chart, daily songs	5	Vocabulary and background knowledge	5	Group discussion (> 1 child or 1 child & group; various question types) - Quality Rating	5	Computer/interactive instructional technology	5	Whole group				
4	Child reading/emergent reading: shared reading (teacher with one child, taking turns reading)	6	Conventions of text, format, emergent writing NOT letter shapes (Print awareness)	6	Individual discussion (single child only, various question types) - Quality Rating	6	Picture(s), representative object(s), illustration(s), or icon(s)						
5a	Child writing: Emergent writing Copying, tracing	7	Print motivation			7	Connected to classroom theme						
5b	Child tagging/matching (e.g., word to object, word to icon, word to picture, letter to picture, letter to letter, word to word, etc.)	8	Oral communication/ listening skills	8		8	Other						
6						9	None						
7	Literacy assessment												

Quality Indicators for Discussion/Dialogue on OMLIT-CLIP

		ONLY IF C5-C6 CODED			#1: Literacy Event #2
1. Cognitive Challenge ^a (Focus on teacher's language)	<input type="checkbox"/> 1 (Minimal)	<input type="checkbox"/> 2	<input type="checkbox"/> 3 (Moderate)	<input type="checkbox"/> 4	<input type="checkbox"/> 5 (Extensive)
	Content/topics of discussion/conversation are mostly (more than 75% of time) about management or routines. Adult asks no open-ended questions and only 1 closed-ended question that requires little thought or dialogue.	0 open-ended and 2+ closed-ended	Content/topics are mix of management/routines and other topics (about 50% of each). Adult asks one open-ended question and may ask multiple closed-ended questions that require little thought or dialogue.	2 open-ended	Content/topics of discussion/conversation are primarily rich or abstract ^b —about the physical world or about human motivation. Adult asks three or more open-ended questions that require children to use imagination, make predictions, generate hypotheses, etc.
	Adult does not extend the conversation beyond the here-and-now.		Adult extends conversation beyond the here-and-now for a single topic—talks about past/future, ideas, language, or books.		Adult extends conversation beyond the here-and-now for more than one topic—talks about past/future, ideas, language, or books.
	Briefly mentions an experience children have had (or a related book/class activity), but does not elaborate or invite children's responses OR does not relate topic to children's experiences at all.		Relates activity to experiences children have had (in or out of class); uses this to encourage/invite discussion among children. Checks to see that most children recall the experience that is referred to but does not go beyond yes/no answers from children.		Relates activity to experiences children have had (in or out of class); uses this to encourage/invite discussion among children. Goes beyond checking to be sure that most/all children recall the related event—asks for comments, details that describe that event.
	Adult poses a couple of questions or responds to a child's comment minimally, without engaging children in multiple turn-taking opportunities; OR the discussion may start but lasts only briefly before adult commences another activity or engages in management-related discourse.	<input type="checkbox"/> 2	<input type="checkbox"/> 3 (Moderate)	<input type="checkbox"/> 4	<input type="checkbox"/> 5 (Extensive)
2. Depth of Discussion (Focus on teacher's attempts to draw out child's response)	Adult never elaborates on children's remarks (by providing details, description, or explanation) AND never asks children to elaborate (by asking for details, description, explanation).	Elaborates or asks once for elaboration	Adult elaborates on children's remarks (by providing details, description, or explanation) OR asks children to elaborate (by asking for details, description, explanation) twice.	Elaborates or asks 3 times for elaboration	Adult elaborates on children's remarks (by providing details, description, or explanation) OR asks children to elaborate (by asking for details, description, explanation) four or more times.

Code feature below only if discussion relates to children's experience; otherwise code NA

- a. Cognitive Challenge: Defined by extent of cognitive abstractions and cognitive extensions in discussion/dialogue with children
- b. Cognitive abstraction = talking about generalizations about the physical world and about human motivations
Cognitive extension = talking about past and future or about things that are "non-present"—e.g., weekend plans, talk about books, or about ideas

Classroom Literacy Instruction Profile MLIT-CLIP

No CLIP coded: <input type="checkbox"/> Gross motor group activity <input type="checkbox"/> Other reason	Context: <input type="checkbox"/> Child-selected activity <input type="checkbox"/> Teacher-selected activity <input type="checkbox"/> Meal/snack/routine	Staff ID# _____ <input type="checkbox"/> All Non-Literacy Activity (10 min.)
Describe Literacy Event ("Title"):	Expected Start Time _____: _____ am/pm CLIP #1 _____	Literacy Event #2 _____: _____ am/pm End _____: _____ am/pm

Other Staff in Literacy Events:

Staff ID _____	Column A _____
Staff ID _____	Column A _____
Staff ID _____	Column A _____

A. Literacy Activity (circle one)		B. Literacy Knowledge Afforded (circle one)		C. Teacher's Instructional Style (circle one)		D. Text Support/Context for Literacy Instruction (circle all that apply, specify)		E. Number of Children in Activity w/Teacher (circle one E1-E4; E5 if applicable)		F. Child(ren)'s Talk (circle all that apply)		G. Teacher's Involvement With Child(ren) (circle all that apply)	
1	Teacher presents information or explains about print/text/ language, or Reads text to children (when not RAP)	1	Sounds —NO PRINT used— (phonological awareness)	1	Performing/presenting (child/ren) (listen/watch)	1	Whole/connected text (e.g., book, story)	1	One Child	1a	Talk with teacher, English, Spanish, or other	1a	Teacher (language, English, Spanish, or other language)
2	Teacher writing	2	Letters Shape & name; numerals; some sight words (e.g., child's own name) (orthographic awareness)	2	Directing child(ren)'s response (usually closed-ended questions/commands)	2	Isolated text—sentence, word, letter(s), numeral(s), or word part	2	Two children	2a	Talk with peers, English, Spanish, or other	2a	Focus of language: To group To one child To children in turn
3a	Focused oral language: Language games, rhymes, songs, storytelling [NOT songs for transitions or management]	3	Sounds & letters together —PRINT used— (phonological-orthographic awareness)	3	Making suggestions/ offering materials	3	Environmental print/ functional text	3	Small group (3-5 children)	3a	Talk with group, English, Spanish, or other	3	No teacher language
3b	Discussion, dialogue	4	Comprehension of text/ story	4	Observation/listening (teacher within 3 feet of child/ren); 1 or more minutes observing and/or listening)	4	TV/video	4	Large group (6+ children)	4	No child language		
3c	Circle time routines: weather, calendar, job chart, daily songs	5	Vocabulary and background knowledge	5	Group discussion (> 1 child or 1 child & group; various question types) - Quality Rating	5	Computer/interactive instructional technology	5	Whole group				
4	Child reading/emergent reading: shared reading (teacher with one child, taking turns reading)	6	Conventions of text, format, emergent writing NOT letter shapes (Print awareness)	6	Individual discussion (single child only, various question types) - Quality Rating	6	Picture(s), representative object(s), illustration(s), or icon(s)						
5a	Child writing: Emergent writing Copying, tracing	7	Print motivation			7	Connected to classroom theme						
5b	Child tagging/matching (e.g., word to object, word to icon, word to picture, letter to picture, letter to letter, word to word, etc.)	8	Oral communication/ listening skills	8		8	Other						
6						9	None						
7	Literacy assessment		For B1-B8: Check if content is incorrect										

Quality Indicators for Discussion/Dialogue on OMLIT-CLIP

		ONLY IF C5-C6 CODED			#1: Literacy Event #3
1. Cognitive Challenge ^a (Focus on teacher's language)	<input type="checkbox"/> 1 (Minimal) Content/topics of discussion/conversation are mostly (more than 75% of time) about management or routines. Adult asks no open-ended questions and only 1 closed-ended question that requires little thought or dialogue. Adult does not extend the conversation beyond the here-and-now.	<input type="checkbox"/> 2 0 open-ended and 2+ closed-ended	<input type="checkbox"/> 3 (Moderate) Content/topics are mix of management/routines and other topics (about 50% of each). Adult asks one open-ended question and may ask multiple closed-ended questions that require little thought or dialogue. Adult extends conversation beyond the here-and-now for a single topic—talks about past/future, ideas, language, or books.	<input type="checkbox"/> 4 2 open-ended	<input type="checkbox"/> 5 (Extensive) Content/topics of discussion/conversation are primarily rich or abstract ^b —about the physical world or about human motivation. Adult asks three or more open-ended questions that require children to use imagination, make predictions, generate hypotheses, etc. Adult extends conversation beyond the here-and-now for more than one topic—talks about past/future, ideas, language, or books.
	Code feature below only if discussion relates to children's experience; otherwise code NA				
	Briefly mentions an experience children have had (or a related book/class activity), but does not elaborate or invite children's responses OR does not relate topic to children's experiences at all.		Relates activity to experiences children have had (in or out of class); uses this to encourage/invite discussion among children. Checks to see that most children recall the experience that is referred to but does not go beyond yes/no answers from children.		Relates activity to experiences children have had (in or out of class); uses this to encourage/invite discussion among children. Goes beyond checking to be sure that most/all children recall the related event—asks for comments, details that describe that event.
2. Depth of Discussion (Focus on teacher's attempts to draw out child's response)	<input type="checkbox"/> 1 (Minimal) Adult poses a couple of questions or responds to a child's comment minimally, without engaging children in multiple turn-taking opportunities; OR the discussion may start but lasts only briefly before adult commences another activity or engages in management-related discourse. Adult never elaborates on children's remarks (by providing details, description, or explanation) AND never asks children to elaborate (by asking for details, description, explanation).	<input type="checkbox"/> 2 Elaborates or asks once for elaboration	<input type="checkbox"/> 3 (Moderate) Engages children in discussion marked by turn-taking, but children's turns are short (yes/no, single word, etc.). Adult elaborates on children's remarks (by providing details, description, or explanation) OR asks children to elaborate (by asking for details, description, explanation) twice.	<input type="checkbox"/> 4 Elaborates or asks 3 times for elaboration	<input type="checkbox"/> 5 (Extensive) Engages children in discussion marked by multiple turn-taking (including longer child turns, more than 3 child turns). Adult elaborates on children's remarks (by providing details, description, or explanation) OR asks children to elaborate (by asking for details, description, explanation) four or more times.

a. Cognitive Challenge: Defined by extent of cognitive abstractions and cognitive extensions in discussion/dialogue with children

b. Cognitive abstraction = talking about generalizations about the physical world and about human motivations)

Cognitive extension = talking about past and future or about things that are "non-present"—e.g., weekend plans, talk about books, or about ideas

Classroom Literacy Instruction Profile MLIT-CLIP

No CLIP coded: <input type="checkbox"/> Gross motor group activity <input type="checkbox"/> Other reason	Context: <input type="checkbox"/> Child-selected activity <input type="checkbox"/> Teacher-selected activity <input type="checkbox"/> Meal/snack/routine	Staff ID# _____ <input type="checkbox"/> All Non-Literacy Activity (10 min.)
Describe Literacy Event ("Title"): _____		
Other Staff in Literacy Events: <input type="checkbox"/> Staff ID _____ Column A: _____ <input type="checkbox"/> Staff ID _____ Column A: _____ <input type="checkbox"/> Staff ID _____ Column A: _____	Literacy Event #3 _____ Start Time _____: _____ am/pm End _____: _____ am/pm	CLIP #1 _____ Start Time _____: _____ am/pm End _____: _____ am/pm

Literacy Event #3

A. Literacy Activity (circle one)	B. Literacy Knowledge Afforded (circle one)	C. Teacher's Instructional Style (circle one)	D. Text Support/Context for Literacy Instruction (circle all that apply, specify)	E. Number of Children in Activity w/Teacher (circle one E1-E4; E5 if applicable)	F. Child(ren)'s Talk (circle all that apply)	G. Teacher's Involvement With Child(ren) (circle all that apply)
1 Teacher presents information or explains about print/text/ language, or Reads text to children (when not RAP)	1 Sounds —NO PRINT used— (phonological awareness)	1 Performing/presenting (child/ren) (listen/watch)	1 Whole/connected text (e.g., book, story)	1 One Child	1a Talk with teacher, English, Spanish, or other 1b	1a Teacher (language, English, Spanish, or other language) 1b Focus of language: To group, To one child, To children in turn
2 Teacher writing	2 Letters Shape & name; numerals; some sight words (e.g., child's own name) (orthographic awareness)	2 Directing child(ren)'s response (usually closed-ended questions/commands)	2 Isolated text—sentence, word, letter(s), numeral(s), or word part	2 Two children	2a Talk with peers, English, Spanish, or other 2b 2c	2a To group 2b To one child 2c To children in turn
3a Language games, rhymes, songs, storytelling [NOT songs for transitions or management] 3b Discussion, dialogue 3c Circle time routines: weather, calendar, job chart, daily songs	3 Sounds & letters together —PRINT used— (phonological-orthographic awareness)	3 Making suggestions/ offering materials	3 Environmental print/ functional text	3 Small group (3-5 children)	3a Talk with group, English, Spanish, or other 3b 3c	3 No teacher language
4 Child reading/emergent reading: shared reading (teacher with one child, taking turns reading)	4 Comprehension of text/ story	4 Observational/listening (teacher within 3 feet of child/ren); 1 or more minutes observing and/or listening)	4 TV/video	4 Large group (6+ children)	4 No child language	
5a Child writing: Emergent writing Copying, tracing 5b Child tagging/matching (e.g., word to object, word to icon, word to picture, letter to picture, letter to letter, word to word, etc.)	5 Vocabulary and background knowledge 6 Conventions of text, format, emergent writing NOT letter shapes (Print awareness)	5 Group discussion (> 1 child or 1 child & group; various question types) • Quality Rating 6 Individual discussion (single child only; various question types) • Quality Rating	5 Computer/interactive instructional technology 6 Picture(s), representative object(s), illustration(s), or icon(s)	5 Whole group		
6 Literacy assessment	7 Print motivation 8 Oral communication/ listening skills <input type="checkbox"/> For B1-B8: Check if content is incorrect	7 Connected to classroom theme 8 Other 9 None				

A. Literacy Activity

1. **Teacher presents information (or explains about) print / text / language, or reads text to children:**
 - o presenting information to children
 - o explaining about print / text: The teacher is explaining something about a written text to children.
 - o explaining about the sounds of language: The teacher explains something about the sounds a letter or word makes, for example.
 - o explaining about alphabet: The teacher points out or explains about individual letters or the whole alphabet. This can include talking about numerals, which are symbols that represent numbers.
 - o reading: The teacher is reading a text—it could be a poem, a story that the class has composed together, a book (>5 RAPs), or some other non-book text.
2. **Teacher writing:** The teacher is writing letter(s), word(s), or sentence(s) while children observe. This includes teacher writing as child dictates (e.g., caption).
3. **Focused oral language:**
 - 3a) The teacher is leading language play involving rhyming, alliteration, attending to rhythm of speech (clapping out syllables), other games involving oral language, nursery rhymes, storytelling.
 - 3b) The teacher is conducting some kind of focused oral language activity (not social conversation or comforting) such as an in-depth discussion, interviewing, or dialogue.
 - 3c) The teacher is leading circle time routine activities such as calendar, job chart, weather, daily songs, etc.
4. **Child reading/emergent reading; shared reading:**
 - Child(ren) responding to text, e.g., reading word on flashcard, looking at a book, pretending to read, reading.
 - Shared reading is when the teacher is with one child, and they are reading (a book) together.
5. **Child writing:**
 - 5a) emergent writing: Child(ren) writing, includes pretend writing, scribbling, invented spelling (e.g., teacher taking dictation from child). Also includes children creating written messages, lists, plans for the day (emergent or conventional writing)
 - 5b) copying, tracing: Child(ren) tracing or copying print (e.g., teacher may be monitoring or assisting).
6. **Child tagging / matching:** Children placing printed tags onto corresponding (referent) objects, icons, or locations. Can be matching word to object/icon/picture, letter to picture, letter to letter, word to word, etc.
7. **Literacy assessment:** Teacher is conducting a literacy assessment.

OMLIT-CLIP Rules

B. Literacy Knowledge Afforded

1. **Sounds (phonological awareness):** Instruction targets sounds (including, but not limited to, sounds of words or letters). Instruction does not involve use of print.
2. **Letters & words (orthographic awareness):** Instruction focuses on learning to recognize the form (shape) of letters and sight words. It can include naming the letters to identify them and learning to form the letters (i.e., to write them, trace them, copy them, etc.). It can include learning to recognize numerals (circle if numerals) and one's own name.
3. **Sounds and letters (phonological-orthographic awareness):** Instruction links letters with sounds. Helps children begin to decode written words.
4. **Comprehension of text/story:** Instruction emphasizes meaning of text, skills for understanding text. Answering questions about text content, summarizing content, predicting, formulating questions about text.
5. **Vocabulary and background knowledge:** Instruction builds knowledge of new concepts and new words, builds on what children already know to give new vocabulary meaning. Teacher introduces new concepts/words in play/ other activity (w/ or w/out explicit definition); compares/ contrasts new concepts or words to known ones.
6. **Conventions of text, format, emergent writing:** Instruction points out format &/or purpose of print, signs, symbols in environment; teacher explains print conventions (e.g., title, author or book cover, capital letters at beginning of sentences, period at end, spaces between words). Includes beginning-middle-end concept and emergent writing but NOT letter shapes/names (=B2).
7. **Print motivation:** Activity serves to make reading or other interaction with print enjoyable so that child would want to engage in it again. Code emergent reading opportunities here. However, if another code in this dimension fits, the other code should be used.
8. **Oral Communication / Listening Skills:** Purpose of activity is to encourage children to use language to communicate, to use new vocabulary, and/or to learn to listen carefully/ attentively.

C. Instructional Styles

1. **Performing/Presenting:** Teacher reads, speaks, without expecting response from children at that time.
2. **Directing children's response:** Teacher tells students what to do, explains or demonstrates, with little conversation from children. Includes recitation and/or call-and-response (class responds to closed-ended questions in unison, in a back and forth manner), and singing.
3. **Making suggestions, offering materials:** The teacher suggests ways of extending activities (e.g., to include or extend literacy activity) or offers materials (e.g., literacy materials).

4. **Observation/Listening:** Teacher is observing or listening to children engaged in literacy activity for 1 minute or more; teacher is within 3 feet of child(ren) in activity.
5. **Relates to child's experience:** Teacher attempts to relate the topic to something in the children's experience (as in the read aloud question type, "distancing"). "Distancing" questions attempt to help children link the topic to something they already know about. For example, "Remember on our trip to the firehouse when we saw the fire truck? What did the firemen use to reach the top windows of the building?"
6. **Group Discussion:** Teacher talks with 2 or more students, encourages input from small group of children or whole class; includes responsive, dialogic conversation; may involve lots of interaction and children responding to each other. Questions may be a mixture of open-ended, recall, etc. There are multiple conversational turns.
7. **Individual Discussion:** Teacher talks with one child gathering knowledge about the child; extending the child's knowledge—includes higher-level questioning, a variety of question types.

D. Text Support for Literacy Activity/Context

1. **Whole/Connected text:** The text consists of 3 or more connected sentences (story, expository text, song). This can be a book.
2. **Isolated text:** The target of instruction is a: sentence (Text is no longer than 2 sentences); word (a single word or set of unconnected words is the target of instruction.); a letter or letters, numeral(s), or parts of a single word (e.g., syllable(s), onset-name, phoneme(s)).
3. **Environmental/print/ Functional text:** Items of environmental/functional print such as poster, sign, menu, catalog, classroom calendar, chore chart, sign-up sheet used as focus of literacy activity.
4. **TV/Video:** The focus of the literacy activity is a television show or segment, teacher participating in TV/video viewing and/or commenting, directing attention to TV/video content.
5. **Computer / Interactive instructional technology:** A computer or other interactive instructional technology provides textual, visual, and/or auditory support for the literacy activity.
6. **Picture(s), representative object(s), illustration(s), or icon(s):** Pictures or object(s) that represent a concept or thing, illustrations, or icons in room share the focus of literacy activity; teacher engaged with object(s), pictures, illustrations, or icons; teacher directing attention to object(s), pictures, illustrations, or icons as part of the literacy activity.
7. **Connected to classroom theme:** The activity is connected to a current classroom theme (e.g., sea life, construction, the universe).
8. **Other**
9. **Note:** No text, TV, or objects being used. Note: this is possible if the focus is on sound, for example.

Read-Aloud Profile

Start Time ____ : ____ am/pm Title of Book: _____ Staff ID# _____ RAP #1 _____

End Time ____ : ____ am/pm Author: _____ Read-Aloud ends before book is completed

A. PRE-Reading (set-up)	B. Reading	C. POST-Reading (extension)	D. Adult Reading Book (circle all that apply)	E. Adult Language with Children (circle all that apply)	F. Number of Children Reading (circle one of F1-4; also F5 if applies)	G. Book Characteristics (circle one for each)			
(circle all that apply)	(circle all that apply)	(circle all that apply)							
1 Guides book choice; discusses children's book choices)	1 Tracks print/discusses English print conventions	1 Answers children's questions about the book or related topics	1 Teacher	1 English	1 One child	Type of Book 1a Picture book 1b Alphabet book 1c Counting book 1d Chapter book 1e Reference book			
2 Points to features of the book such as the title, illustrations, author	2 Uses props/dramatic voices/gestures	2 Expands on children's comments about the book or illustrations	2 Assistant/Aide	2 Spanish	2 Two children	2a Yes 2b No			
2a Discusses/defines concepts of print such as the title, illustrator, author	3 Directs children's attention to illustrations/text/story (e.g., asks questions about; discusses/expands on meaning; offers new information)	3 Comments on sounds, letters, and/or sound-letter links in the book	3 Other Adult	3 Other language	3 Small group (3-5 children)	Language 3a English only 3b Spanish only 3c Eng & Spanish 3d Other language 3e Eng & other language <input type="checkbox"/> Book is read in different language			
3 Reminds children of similar books they have read or that they have read same book before	4 Comments on sounds, letters, and/or sound-letter links in the book	4 Reviews/reinforces book-related vocabulary with or without print reference	Vocabulary & Supports:			4 Large group (6+ children)	4a 0 words 4b 1 word 4c 2-10 words 4d >10 words		
4 Comments on sounds, letters, sound/letter links, or tells children to listen and look for them in the book	5 Highlights new book-related vocabulary	5 Summarizes/re-tells the story without child involvement				5 Whole class	5a Yes 5b No	Words/page 5a 0 words 5b 1 word 5c 2-10 words 5d >10 words	
5 Introduces book-related vocabulary	6 Relates the book to other activities in class, class theme	6 Summarizes/re-tells the story with child involvement				Open-ended Questions:			6a Yes 6b No 6c Don't know
6 Relates the book to other activities in class, class theme	7 Has children join in reading/completing text on their own or as a group (choral reading)	7 Asks for recall of information about the book							
7 Talks about events and/or features to listen, look for in the book	8 Asks recall questions about earlier parts of the book	8 Asks book-related questions about children's experiences outside of classroom activities							
8 Introduces background information related to the book (book with or without child input)	9 Relates the book to children's experiences/Asks book-related questions about children's experiences outside of classroom activities	9 Asks book-related open-ended questions (requires speculation, expanded response, thinking, analysis)							
9 Narrates/re-tells the story in advance of reading	10 Asks book-related open-ended questions (requires prediction, expanded response, thinking, and/or analysis)	10 Organizes post-reading book-related activity (beyond oral discussion)							
10 Relates the book to children's experiences outside of classroom activities	11 No pre-reading experiences or activities (without any codes 1-10)	11 No post-reading activities or extension occurs (without any codes 1-10)							
11 No pre-reading experiences or activities (without any codes 1-10)	12 Picture walk	12 Reads text straight through (without any codes 1 - 13)							
	13								
	14								

Quality Indicators for OMLIT-RAP

RAP #1					
	<input type="checkbox"/> 1 = Minimal	<input type="checkbox"/> 2	<input type="checkbox"/> 3 = Moderate	<input type="checkbox"/> 4	<input type="checkbox"/> 5 = High
1. Story-related vocabulary Code as "1" if no A5, B5, or C4 is circled. Code item as "1" if no new vocabulary introduced.	Some story-related vocabulary words are introduced/discussed, but the definition of one or more of the words is misleading or wrong.	1 story-related vocabulary word and no comprehension supports.	One story-related vocabulary word is introduced or discussed and the definition is accurate AND At least one of the following comprehension supports is given for the word: <ul style="list-style-type: none"> • A picture, gesture, or other concrete visual aid is used; • The word is linked to a rich network of related words or concepts. 	2 story-related vocabulary words with partial comprehension supports.	At least 2 story-related vocabulary words are introduced or discussed and the definition of each vocabulary word is accurate AND Both of the following comprehension supports are given for each word: <ul style="list-style-type: none"> • A picture, gesture, or other concrete visual aid is used; and • Each word is linked to a rich network of related words or concepts.
2. Adult use of open-ended questions Code item as "1" if no open-ended questions (no A10, B11, B12, C8 or C9 circled).	Adult poses only one open-ended question and does not provide opportunity for children to respond to question (child not given time to respond, or adult moves on after child has responded).	1 open-ended question and time for children to respond.	Adult poses two open-ended questions and provides opportunity for children to respond to one but not both of the questions.	2-3 open-ended questions and time for response to at least 2.	Adult poses at least four open-ended questions and consistently shows interest in/actively encourages children's responses (e.g., pausing for children, restating question, calling on particular children, acknowledging children's response).
3. Depth of Post-Reading Code item as "1" if no C1-C10 is circled.	No post-reading extension or activities. (Post-reading coded as C11)	Relates to the book but lasts LESS than 5 minutes.	Discussion and/or activity that <ul style="list-style-type: none"> • Relates to the story/book but does not extend its meaning or comprehension AND Lasts at least 5 minutes.	Extends comprehension and lasts LESS than 10 minutes.	Discussion and/or activity that <ul style="list-style-type: none"> • Extends the meaning of the text and reinforces comprehension of the story/book AND Lasts at least 10 minutes.

A. PRE-Reading

1. **Guides book choice;** discusses children's book choice(s); Adult encourages children to choose the book; talks about their choice with them. Helps them make appropriate choice.
2. **Points to features of the book such as the title, illustrations, author:** Points to title, author, illustrator, or illustration on front of book (or points to chapter title in a chapter book)
- 2a. **Discusses/defines concepts of print such as the title, illustrator, author:** Defines, describes meaning of concepts of print such as title, author, illustrator, or illustration
3. **Reminds children of similar books they have read or that they have read same book before:** Calls attention to books by the same author or illustrator, on same topic, etc. OR reminds children they've already read same book before. Ex: "What was another book that we read about ducks?" or "... by Eric Carle?"
4. **Comments on sounds, letters, sound-letter links, or tells children to listen and look for them in the book:** Talks about sounds they will hear in the story, especially sounds they may have been learning about in class. Or talks about letters they will see in the book, especially letters they have been learning about. Ex: "During the story, when you hear the 'uh' sound, raise your hand." Or "This story has a lot of words that begin with the letter 'g'. Let me know when you see one."
5. **Introduces book-related vocabulary:** Highlights or explains new vocabulary. Ex: "This book is about a fish called a 'sunfish'. Sunfish have fins. Fins are what they use to move around in the water. When we read the book, you will see pictures of sunfish and we can pick out their fins." Does NOT include concepts of print such as illustrator, author, etc.
6. **Relates the book to other activities in class, class theme:** Calls attention to the book's relation to class activities or theme. Ex: "This duck likes to eat fish. What does our pet turtle like to eat?" Or, "Remember last week when we went to the fire station? This story is about firemen like the ones we met."
7. **Talks about events and/or features to listen, look for in the book:** Helps children anticipate things that will happen in the book. Ex: "At the end we'll talk about all the different things that the caterpillar likes to eat. What do we think his favorite food is?"
8. **Introduces background information related to the book (with or without child input):** Describes what the book is about. Ex: "This book is about a birthday party that Little Bear has with all his forest friends." May or may not invite child discussion.
9. **Narrates/tells the story in advance of reading:** Recites all or major parts of the book (e.g., nursery rhyme in book based on rhyme) before actually reading the book.
10. **Relates the book to children's own experiences outside of classroom activities:** Links book to children's experiences outside of class. For example: "Have you ever fed the ducks in the park before? What sound did they make?" or "What kinds of things do you like to do on a rainy day?"
11. **No pre-reading experiences or activities (without any codes 1-10):** The adult may alert children to the reading activity but does not provide any of the above-listed experiences/activities.

B. Reading

1. **Tracks print/discusses English print conventions:** Adult moves finger along the page below the line of print or points sequentially to words in text while reading. Discusses punctuation, directionality of English print.
2. **Uses props / dramatic voices / gestures:** Uses props (e.g., hand puppets, stuffed animals, items in the story), gestures, or different voices to tell story.
3. **Directs children's attention to illustrations/text/story (e.g., asks questions about; discusses/expands on meaning; offers new information):** Points to, or in some way calls children's attention to the book's illustrations, details of the illustrations. Engages children in (brief) discussion about the meaning of text or illustrations and/or offers new information about the story that may not be written in the text or depicted in illustration (e.g., explaining about something unfamiliar in the text or pictures).
4. **Comments on sounds, letters, and/or sound-letter links in the story/book:** Calls children's attention to sounds, letters, or sounds and their corresponding letters in the book text.
5. **Highlights new book-related vocabulary:** Calls attention to, defines, and/or gives examples to help children understand unfamiliar words in the book.
6. **Relates the book to other activities in class, class theme:** Places the book in context by mentioning the class theme and/or how the book fits into the class activities.
7. **Expands on children's comments about the book:** When child makes a comment, adult extends by asking child for elaboration or restating child's comment.
8. **Answers children's questions about the book or related topics:** Allows children to ask questions about the book and then responds to those questions.
9. **Has children join in reading/completing text on their own or as a group (choral reading):** Pauses and/or indicates to children in some way that they should recite words/numbers, phrases, or longer chunks of the text aloud with the teacher.
10. **Asks recall questions about earlier parts of the book:** Asks children to recall events, characters, attributes from earlier in the story.
11. **Relates the book to children's experiences/Asks book-related questions about children's experiences outside of classroom activities:** Extends children's understanding by tapping into their own experiences to help them comprehend the story.
12. **Asks book-related open-ended questions (requires prediction, expanded response, thinking, and/or analysis):** Probes children's comprehension by asking questions about the story that require children to predict (e.g., "What do you think will happen next? What if...?"); elaborate responses; engage in more thought or analysis of the story. **Picture walk:** "Walks through" the book without reading text; turns pages and describes aspects of the illustrations, and/or asks children about the illustrations. May or may not "tell" the story.

14. Reads text straight through (without any codes 1-13):

The adult does not engage children in any of the activities or behaviors listed above while reading the story.

C. POST-Reading

1. **Answers children's questions about the book or related topics:** Teacher reads, speaks, without expecting response from children at that time.
2. **Expands on children's comments about the book or illustrations:** Allows children to ask questions about the book and then responds to those questions.
3. **Comments on sounds, letters, and/or sound-letter links in the book:** Calls children's attention to sounds, letters, or sounds and their corresponding letters in the book text.
4. **Reviews/reinforces book-related vocabulary with or without print reference:** The teacher suggests ways of extending activities (e.g., to include or extend literacy activity) or offers materials (e.g., literacy materials).
5. **Summarizes/re-tells the story without child involvement:** Re-tells plot of story to remind children, help children who didn't understand what the story meant.
6. **Summarizes/re-tells the story with child involvement:** Involves children in retelling plot of story.
7. **Asks for recall of information about the book:** Asks children to recall events, characters, attributes from the story just read about.
8. **Asks book-related questions about children's experiences outside of classroom activities:** Extends children's understanding by tapping into their own experiences to help them comprehend the story.
9. **Asks book-related open-ended questions (requires speculation, expanded response, thinking, and/or analysis):** Probes children's comprehension by asking questions about the book that require speculation, longer or more elaborated responses, more thought, or analysis of the story. Ex: "What do you think would have happened if...?"
10. **Organizes post-reading book-related activity (beyond oral discussion):** The teacher suggests ways of extending activities (e.g., to include or extend literacy activity) or offers materials (e.g., literacy materials).
11. **No post-reading activity or extension occurs (without any codes 1-10):** The adult does none of the above-listed extensions or activities after reading the book.

Note: Discussion of concepts of print during post-reading should be coded as A-2a.

Quality of Language and Literacy Instruction
OMLIT-QUILL

Item	Frequency Rating	Overall Quality Rating					Item Score
		<input type="checkbox"/> 1 = Minimal	<input type="checkbox"/> 2	<input type="checkbox"/> 3 = Moderate	<input type="checkbox"/> 4	<input type="checkbox"/> 5 = High	
<p>1. Opportunities to engage in language and literacy activities</p> <p>^a Domain = writing, letter/word knowledge, oral language, functions/features of print, sound in words</p> <p>^b Small groups = 3-5 children, large groups = 6+ children</p> <p>^c Rich language = rare vocabulary, extended sentences, new words</p> <p>Abstract concepts = non-present topics (prediction, analysis)</p>	<input type="checkbox"/> No opportunities <input type="checkbox"/> Minimal (one) opportunity <input type="checkbox"/> Moderate number of (a few) opportunities <input type="checkbox"/> Extensive number of (many) opportunities	<input type="checkbox"/> 1 = Minimal Language and literacy activities rarely/never higher-quality; typically lower-quality, such as worksheets, tracing/copying, recitation, lecture Little/no variety in language and literacy activities provided (only 1 domain of activities) ^d Language and literacy (not solely oral language) rarely/never integrated into activities with goals other than literacy Language and literacy activities rarely/never conducted with children in small groups/individual children ^e Staff work with only a few/a small percentage of the children in language and literacy activities over the day Staff rarely/never use rich language with children, talk about abstract concepts, or talk about language itself Staff rarely/never positive, enthusiastic engaged in language and literacy activities	<input type="checkbox"/> 2 Language and literacy activities sometimes higher-quality and sometimes lower-quality (about 50% of each) Some variety in language and literacy activities provided (3 domains of activities) ^d Language and literacy (not solely oral language) sometimes integrated into activities with goals other than literacy Language and literacy activities sometimes conducted with small groups/individual children and sometimes with large groups ^e Staff work with up to half of the children in language and literacy activities over the day Staff sometimes use rich language with children, sometimes talk about abstract concepts, and sometimes talk about language itself Staff sometimes positive, enthusiastic, engaged in language and literacy activities and sometimes not	<input type="checkbox"/> 4 Language and literacy activities often/consistently higher-quality, such as songs, rhymes, reading aloud, games, extended 1-1 discussions/ dialogue, journals Wide variety in language and literacy activities provided (5 domains of activities) ^d Language and literacy (not solely oral language) often integrated into activities with goals other than literacy Language and literacy activities are often/consistently conducted with small groups/individual children ^e Staff work with most/all of the children in language and literacy activities over the day Staff often/consistently use rich language with children, talk about abstract concepts, and talk about language itself Staff often/consistently positive, enthusiastic, engaged in language and literacy activities	<input type="checkbox"/> 5 = High	Scores on these features are the average from items 1-5	
Snapshots		CLIPs/RAPs					Other Language and Literacy Activities
ALL LANGUAGE AND LITERACY							

Quality of Language and Literacy Instruction
OMLIT-QUILL

Item	Frequency Rating	Overall Quality Rating					Item Score
		<input type="checkbox"/> 1 = Minimal	<input type="checkbox"/> 2	<input type="checkbox"/> 3 = Moderate	<input type="checkbox"/> 4	<input type="checkbox"/> 5 = High	
2. Opportunities to engage in writing	<input type="checkbox"/> No opportunities <input type="checkbox"/> Minimal (one) opportunity <input type="checkbox"/> Moderate number of (a few) opportunities <input type="checkbox"/> Extensive number of (many) opportunities	Writing activities rarely/never higher-quality, usually lower quality, such as worksheets, tracing/copying Little/no variety in writing activities provided (either only 1 activity or only 1 type of activity) Writing rarely/never integrated into activities with goals other than literacy Writing activities rarely/never conducted with children in small groups/individual children	Writing activities sometimes higher-quality and sometimes lower-quality (about 50% of each) Some variety in writing activities provided (3 different types of activities) Writing sometimes integrated into activities with goals other than literacy Writing activities sometimes conducted with small groups/individual children and sometimes with children in large groups	Writing activities often/consistently higher-quality, such as emergent writing, captioning, dictation with teacher, writing own name on work, book-making, journals Wide variety in writing activities provided (5+ different types of activities) Writing often integrated into activities with goals other than literacy Writing activities are often/consistently conducted with small groups/individual children			
Children writing on their own = using invented or phonetic spelling and irregular letter forms Note: Writing can include writing numerals, not just letters.		Staff work with only a few/a small percentage of the children in writing activities over the day In few/no writing activities, writing is done by children themselves rather than by adults Staff rarely/never allow or encourage children to write on their own; ¹ usually insist on conventional letter formation/spelling	Staff work with some up to half of the children in writing activities over the day In some writing activities, writing is done by children themselves rather than by adults Staff sometimes allow or encourage children to write on their own ¹ and sometimes insist on conventional letter formation/spelling	Staff work with most/all of the children in writing activities over the day In most/all writing activities, writing is done by children themselves rather than by adults Staff often/consistently allow or encourage children to write on their own ¹ rather than insisting on conventional letter formation/spelling			
Snapshots		CLIPS					Other Writing Activities
		WRITING					

**Quality of Language and Literacy Instruction
OMLIT-QUILL**

Item	Frequency Rating	Overall Quality Rating					Item Score
		<input type="checkbox"/> 1 = Minimal	<input type="checkbox"/> 2	<input type="checkbox"/> 3 = Moderate	<input type="checkbox"/> 4	<input type="checkbox"/> 5 = High	
<p>3. Attention to/ promotion of letter/word knowledge*</p> <p>* Letter/word knowledge: attention to same/different in letters, names, words, associating letter names and letter shapes; letter-sound matches</p>	<input type="checkbox"/> No opportunities <input type="checkbox"/> Minimal (one) opportunity <input type="checkbox"/> Moderate number of (a few) opportunities <input type="checkbox"/> Extensive number of (many) opportunities	<input type="checkbox"/> Activities promoting letter/word knowledge rarely/never higher-quality; usually lower quality, such as drills, flashcards, worksheets	<input type="checkbox"/> Activities promoting letter/word knowledge sometimes higher-quality and sometimes lower-quality (about 50% of each)	<input type="checkbox"/> Activities promoting letter/word knowledge often/consistently higher-quality, such as reading alphabet books, having children write own name, helping child locate classroom job by calling attention to key letters, games such as letter bingo, letter wall	<input type="checkbox"/> Wide variety in activities to promote letter/word knowledge (5+ different types of activities)		
		<input type="checkbox"/> Little/no variety in activities to promote letter/word knowledge (either only 1 activity or only 1 type of activity)	<input type="checkbox"/> Some variety in activities to promote letter/word knowledge (3 different types of activities)	<input type="checkbox"/> Letter/word knowledge often integrated into activities with goals other than literacy	<input type="checkbox"/> Letter/word knowledge often integrated into activities with goals other than literacy		
		<input type="checkbox"/> Letter/word knowledge rarely/not integrated into activities with goals other than literacy	<input type="checkbox"/> Letter/word knowledge sometimes integrated into activities with goals other than literacy	<input type="checkbox"/> Activities to promote letter/word knowledge are often/consistently conducted with small groups/individual children	<input type="checkbox"/> Activities to promote letter/word knowledge are often/consistently conducted with small groups/individual children		
		<input type="checkbox"/> Activities to promote letter/word knowledge rarely/never conducted with children in small groups/individual children	<input type="checkbox"/> Activities to promote letter/word knowledge sometimes with children in large groups	<input type="checkbox"/> Staff promote letter/word knowledge with only a few/a small percentage over the day	<input type="checkbox"/> Staff promote letter/word knowledge with most/all of the children over the day		
		<input type="checkbox"/> Staff promote letter/word knowledge with only a few/a small percentage over the day	<input type="checkbox"/> Staff promote letter/word knowledge with some/up to half of the children over the day	Other Examples of Attention to Letter/Word Knowledge			
Snapshots		CLIPs/IRAPs					
LETTER/WORD KNOWLEDGE							

Quality of Language and Literacy Instruction
OMLIT-QUILL

Item	Frequency Rating	Overall Quality Rating					Item Score
		<input type="checkbox"/> 1 = Minimal	<input type="checkbox"/> 2	<input type="checkbox"/> 3 = Moderate	<input type="checkbox"/> 4	<input type="checkbox"/> 5 = High	
<p>4. Opportunities/encouragement of oral language to communicate ideas and thoughts</p> <p>*One "turn" refers to a back-and-forth verbal exchange. Multiple turns means at least 3 back-and-forth exchanges</p>	<input type="checkbox"/> No opportunities <input type="checkbox"/> Minimal (one) opportunity <input type="checkbox"/> Moderate number of (a few) opportunities <input type="checkbox"/> Extensive number of (many) opportunities	<input type="checkbox"/> 1 = Minimal Oral language activities are <i>rarely/never</i> higher-quality, usually lower-quality, such as recitation, short dialogues, topics that don't promote thinking, lecture—adult talk predominates Little/no variety in oral language activities provided (either only 1 activity or only 1 type of activity)	<input type="checkbox"/> 2 Oral language opportunities <i>rarely/not</i> integrated into activities with goals other than literacy Oral language activities <i>rarely/never</i> conducted with children in <i>small</i> groups/individual children	<input type="checkbox"/> 3 = Moderate Oral language activities <i>sometimes</i> higher-quality and <i>sometimes</i> lower-quality (about 50% of each) Some variety in oral language activities provided (3 different types of activities)	<input type="checkbox"/> 4 Oral language opportunities <i>sometimes</i> integrated into activities with goals other than literacy Oral language activities <i>sometimes</i> conducted with <i>small</i> groups/individual children in large groups Staff work with <i>some</i> up to <i>half</i> of the children in oral language activities over the day	<input type="checkbox"/> 5 = High Oral language activities <i>often/consistently</i> higher-quality, such as in-depth conversations, dialogues, oral presentations by children, rich symbolic play Wide variety in oral language activities provided (5+ different types of activities)	
		<input type="checkbox"/> 1 = Minimal Verbal interactions between staff and children <i>rarely/never</i> involve multiple turns* and topics other than management issues Staff <i>rarely/never</i> extend or scaffold children's oral language by adding new words or concepts, elaborating on child ideas or descriptions	<input type="checkbox"/> 2 Verbal interactions between staff and children <i>sometimes</i> involve multiple turns* and non-management topics and <i>sometimes</i> involve short, involve mainly management issues	<input type="checkbox"/> 3 = Moderate Verbal interactions between staff and children <i>often/consistently</i> involve multiple turns* and topics other than management	<input type="checkbox"/> 4 Verbal interactions between staff and children <i>often/consistently</i> encourage/ provide opportunities for children to use oral language in higher-level cognitive operations	<input type="checkbox"/> 5 = High Verbal interactions between staff and children <i>often/consistently</i> encourage/ provide opportunities for children to use oral language in higher-level cognitive operations	
Snapshots		CLIPS/RAPs					
		Other Oral Language Activities					
ORAL LANGUAGE							

Quality of Language and Literacy Instruction
OMLIT-QUILL

Item	Frequency Rating	Overall Quality Rating					Item Score
		<input type="checkbox"/> 1 = Minimal	<input type="checkbox"/> 2	<input type="checkbox"/> 3 = Moderate	<input type="checkbox"/> 4	<input type="checkbox"/> 5 = High	
<p>5. Attention to the functions and features of print¹</p> <p>¹ Functions of print: labeling, naming, categorizing, describing. Features of print: directionality (i.e., print goes from left to right, top to bottom).</p> <p>Note: functional print on display in the classroom is not sufficient; staff must engage in active behaviors to draw children's attention to the functions/features of print</p>	<input type="checkbox"/> No activities <input type="checkbox"/> Minimal (one) activity <input type="checkbox"/> Moderate number of (a few) activities <input type="checkbox"/> Extensive number of (many) activities	<input type="checkbox"/> 1 = Minimal Activities that draw attention to the functions/features of print rarely/never higher-quality; usually lower quality, such as direct instruction in absence of authentic, meaningful text	<input type="checkbox"/> 2 Little/no variety in activities that draw attention to the functions/features of print (either only 1 activity or only 1 type of activity)	<input type="checkbox"/> 3 = Moderate Activities that draw attention to the functions/features of print sometimes higher-quality and sometimes lower-quality (about 50% of each)	<input type="checkbox"/> 4 Some variety in activities to draw attention to the functions/features of print (3 different types of activities)	<input type="checkbox"/> 5 = High Activities that draw attention to the functions/features of print are often/consistently higher-quality, such as being part of reading aloud, working with authentic print materials.	
		<input type="checkbox"/> 1 = Minimal Little/no variety in activities that draw attention to the functions/features of print (either only 1 activity or only 1 type of activity)	<input type="checkbox"/> 2 Attention to the functions/features of print is rarely/never integrated into activities with goals other than literacy	<input type="checkbox"/> 3 = Moderate Attention to functions/features of print is sometimes integrated into activities with goals other than literacy	<input type="checkbox"/> 4 Attention to functions/features of print is often integrated into activities with goals other than literacy	<input type="checkbox"/> 5 = High Wide variety in activities to draw attention to the functions/features of print (5+ different types of activities)	
		<input type="checkbox"/> 1 = Minimal Activities that draw attention to functions/features of print rarely/never conducted with children in small groups/individual children.	<input type="checkbox"/> 2 Activities that draw attention to functions/features of print rarely/never conducted with children in large groups	<input type="checkbox"/> 3 = Moderate Activities that draw attention to functions/features of print sometimes conducted with small groups/individual children and sometimes with children in large groups	<input type="checkbox"/> 4 Attention to functions/features of print is often integrated into activities with goals other than literacy	<input type="checkbox"/> 5 = High Activities that draw attention to functions/features of print often/consistently conducted with small groups/individual children	
		<input type="checkbox"/> 1 = Minimal Staff work with only a few/a small percentage of the children in activities that draw attention to the functions/features of print	<input type="checkbox"/> 2 Staff work with some/upto half of the children in activities that draw attention to the functions/features of print	<input type="checkbox"/> 3 = Moderate Staff work with most/all of the children in activities that draw attention to the functions/features of print	<input type="checkbox"/> 4 Staff work with most/all of the children in activities that draw attention to the functions/features of print	<input type="checkbox"/> 5 = High Staff work with most/all of the children in activities that draw attention to the functions/features of print	
Snapshots		CLIPs/IRAPs					Other Examples of Attention to Features/Functions of Print
FUNCTIONS/FEATURES OF PRINT							

Quality of Language and Literacy Instruction
OMLIT-QUILL

Item	Frequency Rating	Overall Quality Rating					Item Score
		<input type="checkbox"/> 1 = Minimal	<input type="checkbox"/> 2	<input type="checkbox"/> 3 = Moderate	<input type="checkbox"/> 4	<input type="checkbox"/> 5 = High	
6. Attention to sounds in words* throughout the day	<input type="checkbox"/> No activities <input type="checkbox"/> Minimal (one) activity <input type="checkbox"/> Moderate number of (a few) activities <input type="checkbox"/> Extensive number of (many) activities	Activities that call attention to sounds in words <i>rarely/never</i> higher-quality; usually lower quality, such as drills, practice on isolated sounds	Activities that call attention to sounds in words <i>sometimes</i> higher-quality and <i>some</i> lower-quality (about 50% of each)	Activities that call attention to sounds of words <i>often/consistently</i> higher-quality, such as reading text that has rhymes/alliteration; singing songs or playing games that emphasize rhyming, syllables in words (clapping out syllables)	Activities that call attention to sounds of words <i>often/consistently</i> higher-quality, such as reading text that has rhymes/alliteration; singing songs or playing games that emphasize rhyming, syllables in words (clapping out syllables)		
		<i>Little/no</i> variety in activities that draw attention to sounds in words (either only 1 activity or only 1 type of activity)	<i>Some</i> variety in activities that draw attention to sounds in words (3 different types of activities)	<i>Wide</i> variety in activities that draw attention to sounds in words (5+ different types of activities)	<i>Wide</i> variety in activities that draw attention to sounds in words (5+ different types of activities)		
* Rhyming; alliteration; sentence segmenting; syllable blending/segmenting; onset-rime blending/segmenting; phoneme blending/segmenting; phoneme manipulation		Attention to sounds in words <i>rarely/never</i> integrated into activities with goals other than literacy	Attention to sounds in words <i>sometimes</i> integrated into activities with goals other than literacy	Attention to sounds in words <i>often</i> integrated into activities with goals other than literacy	Attention to sounds in words <i>often</i> integrated into activities with goals other than literacy		
		Activities that draw attention to sounds in words <i>rarely/never</i> conducted with children in small groups/individual children	Activities that draw attention to sounds in words <i>sometimes</i> conducted with small groups/individual children and sometimes with children in large groups	Activities that draw attention to sounds in words <i>often/consistently</i> conducted with small groups/individual children	Activities that draw attention to sounds in words <i>often/consistently</i> conducted with small groups/individual children		
		Staff work with <i>only a few</i> small percentage of the children in activities that draw attention to sounds in words over the day	Staff work with <i>some</i> up to half of the children in activities that draw attention to sounds in words over the day	Staff work with <i>most</i> half of the children in activities that draw attention to sounds in words over the day	Staff work with <i>most</i> half of the children in activities that draw attention to sounds in words over the day		
		Staff explain sounds in words <i>incorrectly</i> , <i>more than twice</i> (Note: regional/social accents, variants not counted as incorrect)	Staff <i>usually</i> explain sounds in words correctly but explain sounds <i>incorrectly</i> once or twice	Staff <i>always</i> explain sounds in words correctly (regional/social accents, variants not counted as incorrect)	Staff <i>always</i> explain sounds in words correctly (regional/social accents, variants not counted as incorrect)		
Snapshots		Other Examples of Attention to Sounds in Words					
CLIPs/IRAPs		SOUNDS IN WORDS					

**Quality of Language and Literacy Instruction
OMLIT-QUILL**

Language and Literacy Strategies with English-Language Learners (ELLs)		Overall Quality Rating			No ELL children in classroom	Item Score
Item	Frequency	<input type="checkbox"/> 1 = Minimal	<input type="checkbox"/> 2	<input type="checkbox"/> 3 = Moderate	<input type="checkbox"/> 4	<input type="checkbox"/> 5 = High
7. ELL children intentionally included in activities, conversations	<input type="checkbox"/> Check and skip item if all children in class are ELLs.	ELL children rarely/never integrated with English-speaking children in activities		ELL children sometimes integrated with English-speaking children in activities and sometimes segregated		ELL children often/regularly integrated with English-speaking children in activities
		ELL children rarely/never encouraged/supported to join conversations with English-speaking children		ELL children sometimes encouraged/supported to join conversations with English-speaking children and sometimes not		ELL children often/regularly encouraged/supported to join conversations with English-speaking children
8. Development of both home language(s) and English supported for ELL children	Frequency	<input type="checkbox"/> 1 = Minimal	<input type="checkbox"/> 2	<input type="checkbox"/> 3 = Moderate	<input type="checkbox"/> 4	<input type="checkbox"/> 5 = High
		Staff rarely/never positive about having ELL children in the classroom		Staff sometimes positive about having ELL children in the classroom (or only some staff appear positive)		All staff consistently positive about having ELL children in the classroom
		ELL children never encouraged OR sometimes forced to try using English		ELL children sometimes encouraged but never forced to try using English		ELL children regularly encouraged but never forced to try using English
		→ Code only if > 1 ELL child in class or ≥ 2 ELLs with same home language ELL children rarely/never encouraged to use their home language with each other, are actively discouraged		→ Code only if > 1 ELL child in class or ≥ 2 ELLs with same home language ELL children rarely encouraged to use their home language with each other but not discouraged		→ Code only if > 1 ELL child in class or ≥ 2 ELLs with same home language ELL children often/consistently encouraged to use their home language with each other
Snapshots		CLIPs/iRAPs			Other Examples	
ELL INSTRUCTION: INCLUSION AND SUPPORT FOR HOME LANGUAGE						

**Quality of Language and Literacy Instruction
OMLIT-QUILL**

Language and Literacy Strategies with English-Language Learners (ELLs)		Overall Quality Rating			No ELL children in classroom		Item Score
Item	Language	<input type="checkbox"/> 1 = Minimal	<input type="checkbox"/> 2	<input type="checkbox"/> 3 = Moderate	<input type="checkbox"/> 4	<input type="checkbox"/> 5 = High	Item Score
8. Home language(s) of ELL children integrated into language and literacy activities	<input type="checkbox"/> No English used (only ELL children's home language used). [Skip Item]	No staff members speak ELL children's home language(s) AND no other adults used as translators	ELL children's home language(s) rarely/never integrated with English in print-based language and literacy activities	ELL children's home language(s) sometimes integrated with English in print-based language and literacy activities	No staff members speak ELL children's home language(s) AND other adults only sometimes used as translators	At least one staff member speaks ELL children's home language(s) OR other adults often/regularly used as translators	
10. Language and literacy materials/methods appropriate for ELL children	<input type="checkbox"/> No English used (only ELL children's home language used). [Code features]	Few/no text materials in language and literacy activities in English and in ELL children's home language(s)	Few/no other print materials in classroom (labels, posters, charts) include both English and home language(s) of ELL children	Some other print materials in classroom (labels, posters, charts) include both English and home language(s) of ELL children	Some text materials in language and literacy activities in English and in ELL children's home language(s)	Most/all text materials in language and literacy activities in English and in ELL children's home language(s)	
^a Explicit = emphasis on key words, oral description of actions, events. Contextualized = use of gestures, images, objects ^b Predictable, clearly illustrated, clear, repetitive themes, plots							
Snapshots		CLIPs/RAPs			Other Examples		
ELL INSTRUCTION: INTEGRATION INTO LITERACY ACTIVITIES/MATERIALS							

Classroom Literacy Opportunities Checklist

Physical Layout of Classroom		1	2	3	Notes
1	The room is arranged in distinct centers for different activities (e.g., dramatic play, blocks, books, science, math, art or music).	No distinct centers	1-2 distinct centers	3+ distinct centers	
<i>Note: Two or more combined areas count as one. Circle time area is not a center.</i>					
2	Materials and objects in the room appear well organized (i.e., clearly marked, sorted in a systematic way, and stored in designated areas).	Room cluttered with materials, objects that are not marked, sorted, stored	Some materials marked, sorted, stored; others not	Most materials, objects are clearly marked, sorted, and stored	
3	The classroom layout (i.e., space, furniture placement) is designed so that whole-group, small-group, and individual instruction can easily occur (e.g., a large rug for whole group, tables for small group, or individual desks for individual instruction).	Only 1 group size possible	Two group sizes possible	All group sizes possible	
4	The classroom layout allows children to choose materials and participate in activities independently (e.g., low shelves and easy-to-open cabinets contribute to lots of choice).	Restricts choice	Allows some choice	Allows lots of choice	
5	The space is sufficient in size for the number of children (i.e., children are able to move around freely or set up separate activity areas), with adequate lighting and no noxious or unpleasant odors.	Insufficient space, inadequate light and/or odors	Sufficient space and either adequate light or no odors	Sufficient space, adequate light, and no odors	

Classroom Literacy Opportunities Checklist

Print Environment	1	2	3	Notes
<p>6 Examples of children's writing are on display (i.e., actual letters or words formed by children, or lines, marks or squiggles that appear to imitate print, or formal letter-formation exercises).</p> <p>Note: <u>Writing must be child's own attempt.</u></p>	<p>No writing on display</p> <p>1</p>	<p>Only child's own name on work or art on display</p> <p>2</p>	<p>Writing on display other than just child's own name</p> <p>3</p>	
<p>7 Child names are matched with photographs of child/child and family or representative object (e.g., animal, color, etc.) posted in classroom.</p> <p>Note: Children must be identified individually.</p>	<p>No names with photographs</p> <p>1</p>	<p>Names matched to other representative icon</p> <p>2</p>	<p>Yes, names matched to photographs</p> <p>3</p>	
<p>8 Examples of functional print that include words/letters are visible (i.e., print used for a purpose) (e.g., calendar, weather chart, job chart, written rules, words of songs, daily menu, daily schedule, etc.).</p> <p>Note: Do not include labels on types of materials here (e.g., "Blocks", "Writing Center").</p>	<p>None</p> <p>1</p>	<p>1-3 examples</p> <p>2</p>	<p>4+ examples</p> <p>3</p>	
<p>9 Examples of functional print that include numerals are visible (e.g., posters, charts, other visual displays that include numbers, such as calendar, daily schedule, birthday dates).</p> <p>Note: Do not count a regular classroom clock. Do not count puzzles, toys.</p>	<p>None</p> <p>1</p>	<p>1-3 examples</p> <p>2</p>	<p>4+ examples</p> <p>3</p>	
<p>10 Labels for groups of toys, materials or areas/centers in the classroom.</p> <p>Note: Labels for the same area or things in 2 or more languages count as 1 label.</p>	<p>None</p> <p>1</p>	<p>1-6 labels</p> <p>2</p>	<p>7+ labels</p> <p>3</p>	
<p>11 Environmental print--posters with print, children's writing, other print materials--are at or below children's eye level.</p> <p>Note: Eye level is defined as the height of an adult's waist.</p>	<p>None at eye level</p> <p>1</p>	<p>Some at eye level</p> <p>2</p>	<p>Most or all at eye level</p> <p>3</p>	
<p>12 There is at least one alphabet chart at or below children's eye level.</p> <p>Note: Chart must include the entire alphabet; an alphabet rug and alphabet table count and should be coded as a "2".</p>	<p>No chart(s)</p> <p>1</p>	<p>Chart(s) but not at eye level</p> <p>2</p>	<p>Chart(s) and at eye level</p> <p>3</p>	
<p>13 There is at least one numeral chart at or below children's eye level.</p> <p>Note: If numerals chart on rug or table, code as "2".</p>	<p>No numeral chart</p> <p>1</p>	<p>Chart(s) but not at eye level</p> <p>2</p>	<p>Chart(s) at eye level</p> <p>3</p>	

Accessible = Can be reached by children on their own.

Classroom Literacy Opportunities Checklist  **MLIT-CLOC**

Literacy Toys and Materials	1	2	3	Notes
<p>14 There are toys and/or materials accessible to children that include <u>words/letters</u> (e.g., toys - puzzles, blocks, board games, card games; materials - magnetic letters, letter stamps, letter cards, word cards).</p> <p><i>Note: Do not include alphabet chart or alphabet rug.</i></p>	None 1	1-3 toys, materials 2	4+ toys, materials 3	
<p>15 There are toys and/or materials accessible to children that include <u>numerals</u> (e.g., toys - puzzles, blocks, board games, card games; materials - magnetic numerals, number stamps, numeral molds for sand play, numeral flash cards).</p> <p><i>Note: Materials must have numerals on them. Do not include numeral chart.</i></p>	None 1	1-3 toys, materials 2	4+ toys, materials 3	

Classroom Literacy Opportunities Checklist  MLIT-CLOC

Books and Reading Area	1	2	3	Notes
16 Total number of books in the classroom <i>IF NO BOOKS in the classroom, Skip to item 28</i>	None 1	1-20 books 2	21+ books 3	
17 There is a separate and distinct reading area with books for children to choose from. <i>Note: Area should consist of more than just circle area.</i> <i>IF NO area, Skip to item 21</i>	No 1 child only 1	Books but not separate area 2-3 children 2	Yes, books and separate, distinct area 3 4+ children 3	
18 Number of children that the reading area accommodates.	1 child only 1	2-3 children 2	4+ children 3	
19 The reading area is a place where children can sit comfortably to read (e.g., soft furnishings including rugs, pillows, cushions, or couches).	No 1	Sitting area with only a rug 2	Yes 3	
20 Number of books accessible to children in the reading area (i.e., on low shelves, in baskets).	1-7 books 1	8-20 books 2	21+ books 3	
21 There are books on display in open-faced shelving (in the reading area and/or the rest of the classroom). <i>Note: Book covers must face out.</i>	None 1	1-3 books on display 2	4+ books on display 3	
22 Books accessible to children in the classroom are in good condition (i.e., pages are not torn, covers are not missing, print is not faded).	None in good condition 1	Some in good condition 2	Most or all in good condition 3	
23 Books accessible to children in the classroom represent a variety of types (e.g., stories, poetry, non-fiction, wordless, alphabet/counting books, children's magazines (not for cutting up), etc.).	1 type 1	2 types 2	3+ types 3	
24 Books accessible to children in the classroom that present primarily factual information or non-fiction subject matter (e.g., reference books, dictionaries, science, history, biographies, etc.).	None 1	1-3 books 2	4+ books 3	
25 Books accessible to children in the classroom that are in languages other than English, or in both English and other language.	None 1	1-3 books 2	4+ books 3	
26 Books accessible in the classroom cover a range of reading abilities/difficulty levels from very easy to challenging, appropriate for less and more advanced readers (e.g., wordless picture books, 1 word picture books, picture books with 2-10 words, picture books with >10 words, or chapter books).	All 1 level 1	2 levels 2	3 or more levels 3	
27 The classroom has Big Books accessible to children.	None 1	Big Books not accessible to children 2	Big Books accessible to children 3	

Accessible = Can be reached by children on their own.

Classroom Literacy Opportunities Checklist  **MLIT-CLOC**

Listening Area	1	2	3	Notes
<p>28 There is an area for listening to recorded books and listening materials accessible for children's use.</p> <p>Note: Audio equipment must be in working order to count. Radio does not count as listening equipment.</p>	<p>Neither listening area nor listening materials</p> <p align="center">1</p>	<p>Materials or area, not both</p> <p align="center">2</p>	<p>Materials and area</p> <p align="center">3</p>	
<p>29 Amount of listening equipment available.</p> <p>Note: Determine by number of headphones accessible.</p>	<p>Player but no headphones available</p> <p align="center">1</p>	<p>Sufficient equipment for only 1 child</p> <p align="center">2</p>	<p>Sufficient equipment for 2+ children</p> <p align="center">3</p>	
<p>30 There are books to look at along with the recordings of books.</p>	<p>No</p> <p align="center">1</p>	<p>Books but don't match recordings</p> <p align="center">2</p>	<p>Yes</p> <p align="center">3</p>	

Classroom Literacy Opportunities Checklist **MLIT-CLOC**

Writing Supports		1	2	3	Notes
31	There is a separate writing area (table and chairs) with writing materials accessible to children.	Neither materials nor separate area 1	Materials or area, <u>not both</u> 2	Materials and area 3	
32	There are tools in the classroom accessible to children to help them practice writing words/letters (e.g., stencils, templates, tracing sheets, worksheets/workbooks).	None 1	1-3 tools 2	4+ tools 3	
33	<i>Note: tools can be in the writing area or somewhere else in the classroom</i> There are tools in the classroom accessible to children to help them practice writing numerals (e.g., stencils, numeral templates, tracing sheets, worksheets/workbooks).	None 1	1-3 tools 2	4+ tools 3	
34	<i>Note: tools can be in the writing area or somewhere else in the classroom</i> There are a variety of types of paper in the classroom accessible to children (e.g., large newspaper, colored paper, index cards, dry erase board, etc.).	None 1	1-3 types 2	4+ types 3	
35	<i>Note: paper can be in the writing area or somewhere else in the classroom</i> There are a variety of types of <u>writing utensils</u> in the classroom accessible to children in the classroom (e.g., pencils, crayons, chalk, markers, etc.).	None 1	1-3 types 2	4+ types 3	
36	<i>Note: writing utensils can be in the writing area or somewhere else in the classroom</i> The classroom has a mailbox, message board or other ways for children to learn about writing for a purpose.	None 1	1 way of using writing 2	2+ ways of using writing 3	

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Classroom Literacy Opportunities Checklist 

Literacy Materials Outside of the Reading and Writing Areas <i>(If NO centers/areas, SKIP to item 40)</i>	1	2	3	Notes
<p>37 Literacy materials in dramatic play area. There are <u>books</u> and/or other literacy materials in the dramatic play area (e.g., notepads, phone book, shopping lists, pencils, magazines, how-to books, cookbooks).</p> <p>Note: If classroom does not have dramatic play area, code as "1".</p>	No books or literacy materials in dramatic play	Either books or literacy materials in dramatic play, <u>not both</u>	Books and literacy materials in dramatic play	
<p>38 Literacy materials in other areas: There are <u>books</u> and/or other literacy materials in centers/areas other than the book, listening, writing, or dramatic play areas/centers (e.g., art, science, blocks, woodworking, outdoor playground, etc.).</p> <p>*Art: books about art, art journal. *Science area: Notepads, notebooks, places to record observations, paper, pencils. *Block area: Small traffic signs, maps, labeled photos of buildings/construction sites. *Woodworking area: Tool catalogues, home repair magazines *Outdoors: Paper/markers to make signs, colored chalk, maps on fences, bird & tree guides.</p>	No other areas with books and/or literacy materials	1 other area with books and/or literacy materials	2+ other areas with books and/or literacy materials	
<p>39 There are materials to encourage storytelling in an area other than the dramatic play area (e.g., felt boards with story characters, puppets, story cards).</p>	No other areas have storytelling materials	1 other area has storytelling materials	2+ other areas have storytelling materials	

Diversity in Literacy Materials	1	2	3	Notes
<p>40 <u>Books/text</u> materials accessible in the classroom show a variety of diverse groups of people (e.g., ethnicity, age, disability).</p> <p>Note: Animals and cartoon characters do not count. Must be real people or depictions of humans.</p>	None	1-3 examples of diversity in books	4+ examples of diversity in books	
<p>41 Posters or other visual displays are in a <u>language</u> other than English (e.g., posters, signs, labels, etc.).</p> <p>Note: Count each type of visual display in another language as one instance.</p>	None	1-3 posters	4+ posters	
<p>42 <u>Toys</u> and materials in the classroom represent other cultures, ethnic groups, types of people (e.g., clothing, food, decorative objects, dolls and other toys).</p> <p>Note: Do NOT count books.</p>	None	1-3 toys, materials	4+ toys, materials	

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Classroom Literacy Opportunities Checklist **MLIT-CLOC**

Instructional Technology	1	2	3	Notes
43 There are computers for the children to use.	None 1	1-2 computers 2	3+ computers 3	
44 Other interactive technology for children to use (e.g., LeapFrog SchoolHouse™ materials, See & Say™ materials, etc.).	None 1	Sufficient for 1-2 children to use at same time 2	Sufficient for 3+ children to use at same time 3	

Curriculum Theme	1	2	3	Notes
45 Classroom has a curriculum theme. <i>Not truly a content theme: a color, a letter, a number, or something similar. Common concepts: holidays, seasons, dinosaurs. Unusual or rich concept: construction, maps, professions.</i> Describe topic of theme.	No evidence of a content theme 1	Theme based on common concepts 2	Unusual or rich concept 3	

46 Theme is evident in <u>reading/text</u> materials (i.e., books on display in classroom, books read aloud).	No 1		Yes 3	
47 Theme is evident in <u>art projects</u> related to theme.	No 1		Yes 3	
48 Theme is evident in <u>children's work on display</u> in classroom (e.g., art projects, children's writing, photographs, etc.).	No 1		Yes 3	
49 Theme is evident in <u>dramatic play</u> materials (e.g., props, costumes, related books placed in dramatic play area).	No 1		Yes 3	
50 Theme is evident in <u>commercial or teacher-made posters/displays</u> (e.g., charts, writing, graphs, photographs with captions).	No 1		Yes 3	
51 Theme is evident in <u>classroom activities</u> related to current theme (e.g., songs, learning centers, field trips).	No 1		Yes 3	

Classroom Literacy Opportunities Checklist  **MLIT-CLOC**

Literacy Resources Outside of Classroom	1	2	3	Notes
52 Book area/library outside of the classroom. <i>IF NO book area/library outside of classroom, SKIP to Item 54</i>	No book area/library outside class 1	Book area used but NOT during observation 2	Book area/library outside of class used during observation 3	
53 Number of books accessible in book area/library outside of the classroom	1-7 books 1	8-20 books 2	21+ books 3	
54 Computer lab/computer room or area outside of classroom. <i>IF NO computer area outside of classroom, SKIP to End</i>	No computer area 1	Computer area used but NOT during observation 2	Computer area used during observation 3	
55 Number of computers accessible to children outside of the classroom.	1-2 computers 1	3-4 computers 2	5+ computers 3	

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