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Quality of Language and Literacy Instruction in Preschool Classrooms Serving At-Risk Pupils

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Abstract

Policy-makers, administrators, researchers, and teachers are increasingly vested in ensuring the quality of preschool instruction, particularly in the areas of language and literacy. This research was conducted to characterize the quality of language and literacy instruction in 135 publicly-funded preschool classrooms serving at-risk pupils. As all teachers in these classrooms were implementing the same language and literacy curriculum, we also studied the interrelationships among procedural fidelity to a prescribed curriculum and the quality of language and literacy instruction, determining whether procedural fidelity is associated or disassociated with quality instruction. Results showed that the quality of language and literacy instruction in classrooms was low, with few teachers delivering high quality instruction. Although teachers were able to implement a prescribed language and literacy curriculum with a high degree of procedural fidelity, this was not associated with quality instruction. Few structural characteristics of classrooms of teachers were systematically associated with quality of instruction. Findings have important implications for professional development of teachers by suggesting a need for a sustained and coherent focus on the process of instruction to elevate instructional quality in language and literacy.

Two-thirds of 4-year-olds currently participate in early education programs, and this figure is growing annually in light of many state-level initiatives to expand enrollment or provide universal access to preschool for 4-year-old children (Barnett & Yarosz, 2004). Complementing these initiatives are movements to improve the quality of instruction within preschool programs, particularly in the area of language and literacy. As an example, the U.S. Department of Education's Early Reading First program provides funds to preschool programs to support their achievement of "excellence" in programming, particularly the provision of high-quality instruction in literacy and language through improved classroom print richness, professional development for staff, and implementation of scientifically-based curricula. The anticipated outcome of such proactive and prevention-oriented initiatives is that more children will enter school with the skills and competencies needed to succeed in early and later reading instruction.

Educational-policy initiatives that seek to improve the quality of early education, particularly in the area of literacy and language instruction, are grounded in developmental theory and empirical evidence emphasizing the continuity between children's early literacy and language development and their later achievement of skilled reading (e.g., Catts, Fey, Zhang, & Tomblin, 2001; Lonigan, 2006; Storch & Whitehurst, 2002; Whitehurst & Lonigan, 1998). Evidence shows that children with well-developed language and literacy

skills enter kindergarten poised to acquire the alphabetic principle and to apply this principle to two key aspects of reading development: word recognition and reading comprehension (Chaney, 1998; Lonigan, Burgess, & Anthony, 2000; NICHD Early Child Care Research Network [ECCRN], 2005; Storch & Whitehurst, 2002). Conversely, children who enter kindergarten with relatively under-developed language and literacy skills are more likely than their higher-achieving peers to exhibit difficulties in both immediate and long-term reading development (Gallagher, Frith, & Snowling, 2000; O'Connor & Jenkins, 1999). Whereas children's early literacy and language achievements are relatively malleable in the preschool years, these skills become increasingly stable during the elementary grades (see Lonigan, Burgess, Anthony, & Barker, 1998). Consequently, more intensive remediation efforts become necessary to bring children's language and literacy skills to grade-level performance than are necessary during the preschool years.

The available empirical evidence on characteristics of preschool programs that most relate to improved pupil outcomes in language and literacy indicates that instructional quality is at least as important as structural characteristics of the classroom (e.g., Howes et al., in press; Meisels, 2006). Instructional quality refers to dynamic features of the classroom, including how teachers provide socio-emotional support to students, manage the classroom, relate to students, and deliver instruction within the selected classroom curriculum (La Paro, Pianta, & Stuhlman, 2004; NICHD ECCRN, 2000). When estimating the impact of preschool programs on children's outcomes, instructional quality is characterized as a process variable that exerts a direct effect on child outcomes, whereas instructional environment and instructional curriculum are structural and intermediate variables that indirectly affect child outcomes (NICHD ECCRN, 2002). By some accounts, instructional quality is the single most important factor that influences student achievement (Nye, Konstantopoulos, & Hedges, 2004; Rivkin, Hanushek, & Kain, 2000), and some experts contend that student achievement differences within high versus low quality instructional environments equate to about one year of academic achievement (Hanushek, 1992). One major limitation of current research on instructional quality in preschool settings is a lack of validated tools to assess the quality of literacy and language instruction in the classroom.

Nonetheless, a considerable literature is available to identify characteristics of quality language and literacy instruction within preschool programs and to guide development of measures that can validly assess instructional quality in these areas. We consider first the literature concerning quality language instruction, which largely draws from social-interactionist theories of language acquisition (e.g., Baumwell, Tamis-LeMonda, & Bornstein, 1997; Chapman, 2000; Landry, Miller-Loncar, Smith, & Swank, 1997). These theorists view language acquisition as a psychobiological process to which "frequent, relatively well-tuned affectively positive verbal interactions" are critical for supporting language growth in early childhood (Chapman, 2000, p. 43). Numerous descriptive and experimental studies have shown the positive developmental impacts of adult use of well-tuned (also called responsive) conversational input to children, particularly the use of open-ended questions, expansions, advanced linguistic models, and recasts (e.g., Baker & Nelson, 1984; Nelson, 1977; Vasilyeva, Huttenlocher, & Waterfall, 2006; Wasik, Bond, & Hindman, 2006; Yoder, Spruytenburg, Edwards, & Davies, 1995). Social-interactionist theories of language development have informed the design of classroom interventions to accelerate language growth in typical and at-risk children (e.g., Whitehurst & Lonigan, 1998; Vasilyeva et al., 2006; Wasik et al., 2006; Whitehurst et al., 1988). In these interventions, preschool educators are trained to utilize specific language-facilitation techniques in their formal and informal interactions with children to provide frequent exemplars of language forms and functions that are slightly advanced of (and thus responsive to) children's linguistic abilities. These techniques, such as open-ended questions, expansions, and recasts, are applied across a variety of classroom contexts, such as center time, storybook reading,

and meal time (e.g., Bunce, 1995; Dickinson, 2006; Girolametto & Weitzman, 2002; Huttenlocher, Vasilyeva, Cymerman, & Levine, 2002; McKeown & Beck, 2006; Wasik et al., 2006), and have been causally associated with accelerated language outcomes in preschool children.

The defining characteristics of high-quality literacy instruction in the preschool classroom must be differentiated from the responsive and conversationally-oriented features of high-quality language instruction. High-quality literacy instruction features systematic and explicit direct instruction that teaches children about the code-based characteristics of written language, to include both phonological and print structures. It therefore features a relatively teacher-directed approach to ensure the systematicity and explicitness of literacy instruction (Byrne & Fielding-Barnsley, 1989; Justice, Chow, Capellini, Flanigan, & Colton, 2003; van Kleeck, Gillam, & McFadden, 1998). Systematicity refers to the teachers' organization and sequencing of lessons so that they "reveal the logic of the alphabetic system" (Adams, 2002, p. 74), whereas explicitness refers to teachers' use of clear terminology that focuses children's attention on the concepts being learned (Adams, 2002). An additional feature of high-quality literacy instruction is its purposefulness, or functionality, which refers to teachers' efforts to attach decontextualized code-based aspects of literacy instruction to meaning and comprehension (Ukrainetz, 2005). Applied studies of preschool literacy intervention have shown that increases in children's participation in classroom-based literacy experiences characterized by systematic, explicit, and purposeful experiences with print and sound can accelerate emergent literacy development (e.g., Justice et al., 2003; van Kleeck et al., 1998; Whitehurst et al., 1988).

In this study, we drew from the available literature that characterizes high-quality language and literacy instruction in preschool classrooms to develop two rating scales by which to quantify the quality of instruction in 135 publicly-funded preschool classrooms serving at-risk pupils. Our first aim was to determine the quality of language and literacy instruction in at-risk preschool classrooms. A second and related aim was to explore possible predictors of high-quality language and literacy instruction, including teacher characteristics, classroom characteristics, and lesson characteristics. For teacher characteristics, we studied whether educational experiences (advanced degree, major, number of language and literacy workshops, years of teaching experience) and perceptions of teaching (level of self efficacy, adult-centered ideas) predicted high quality instruction. For classroom characteristics, we studied whether the demographic composition of the classroom was a significant predictor of high quality instruction. For lesson characteristics, we studied whether the number of children participating in the lesson and the type of lesson being implemented by the teacher (language focus or literacy focus) predicted high quality instruction.

A third aim was also addressed, namely, to determine the relationship between teachers' procedural fidelity when implementing the lessons of a structured language and literacy curriculum and the quality of language and literacy instruction for these lessons. Although the teachers in this study used several different global curricula in their classrooms (e.g., High/Scope, Creative), each was also implementing a supplemental language and literacy curriculum with a prescribed scope and sequence and weekly lesson plans that was layered upon the global curricula. Teachers' implementation of the language and literacy lesson plans was examined to determine their procedural fidelity to the curriculum, with procedural fidelity referring to the extent to which one carries out procedures "accurately, efficiently, and appropriately" – essentially, the ability to follow step-by-step routines (New York State Education Department, 2005). We use the term "procedural fidelity" in this article to reference teachers' procedural skill (see Sun, Merrill, & Peterson, 2001) in implementing a new curriculum, that is, the ability to implement lesson plans as they are intended.

In educational research, implementation of manualized curricula or instructional approaches often utilizes measures of procedural fidelity to ensure they are implemented as intended (e.g., Justice & Ezell, 2002; Lonigan, Anthony, Bloomfield, Dyer, & Samwel, 1999; Reid & Lieneman, 2006; Wasik et al., 2006); inclusion of procedural fidelity measures are considered an "essential quality" for intervention research (Gersten et al., 2005), including research on preschool curricula implementation (e.g., Preschool Curriculum Evaluation Research Consortium; see http://pcer.rti.org). Within practice, procedural fidelity measures are increasingly used to determine whether teachers are using adopted programs as intended, particularly those that are considered to be "scientifically based" and for which procedural fidelity might be a key moderator of pupil outcomes (see Glenn, 2006).

As important as procedural fidelity is to ensuring that curricula are implemented as intended, it must be distinguished from quality of implementation, which is decidedly more difficult to capture (Sylva et al., 2006) and likely reflects a teacher's conceptual rather than procedural skill. We use the term "quality of instruction" in this article to refer to a teacher's ability to work flexibly with students to differentiate instruction and respond sensitively to what they bring to the task, that is, to exhibit skilled performance within dynamic interactions with children in learning activities that unfold over time. Importantly, whereas measurement of procedural aspects of implementation examines whether teachers can "go through the motions" in following step-by-step aspects of a novel curriculum or approach, measurement of quality of instruction looks globally at relational processes between teachers and children across an entire learning episode.

The extent to which measurement of a teacher's procedural fidelity in implementing a structured curriculum may serve as a proxy for her instructional quality is a timely question, as the availability and implementation of preschool language and literacy curricula is flourishing in response to national and local initiatives focused on improving the quality of language and literacy instruction in preschool programs. These include both comprehensive curricula that organize classroom activities and experiences for the entire classroom day (e.g., Opening a World of Learning; Schickedanz, Dickinson, & Charlotte-Mecklenburg Schools, 2006) as well as more focal supplements that are embedded into a general curricular framework to provide encapsulated lessons explicitly focused on language and literacy (e.g., Doors to Discovery; Wright Group, 2004). Both types of curricula typically provide a detailed scope and sequence for language and literacy instruction for the entire academic year, weekly lesson plans specifying a set of language and literacy objectives and corresponding activities, example scripts (and for some, companion websites) illustrating quality implementation of activities, books and other manipulatives needed to implement the curriculum, informal assessments to monitor children's progress in the curriculum, and implementation checklists to monitor teachers' fidelity to the curriculum.

Given the lack of empirical research concerning the intermediate and direct effects of most published preschool language and literacy curricula, it is not clear whether procedural fidelity to a curriculum – even when occurring with the highest level of fidelity – is associated with quality literacy and language instruction. Studies by the NICHD ECCRN (2005) and National Center for Early Development and Learning (Early et al., 2005; Howes et al., in press) have found substantial variability in instructional quality among 2,000 preschool and elementary school classrooms and found quality to be highly variable even within schools and among teachers reporting use of the same curriculum. In this research, we contribute to this literature by examining the interrelationships among teachers' procedural fidelity when implementing language and literacy lesson plans, and the quality of instruction.

To sum, this study addressed three aims: (1) To determine the quality of language and literacy instruction in publicly-funded preschool programs serving at-risk children, (2) To examine the contributions of teacher characteristics (professional experiences, psychological traits), classroom characteristics (composition of children in the class, curriculum type), and characteristics of an instructional lesson (number of children participating; language or literacy lesson) to the quality of language and literacy instruction, and (3) To determine the relationship between procedural fidelity of curriculum implementation and the quality of language and literacy instruction.

Method

Participants

Participants were 135 teachers involved in a professional development study of state-funded preschools in one mid-Atlantic state. Forty school districts within the state were randomly selected to participate, and within each district, teacher participation in the professional development study was voluntary. All of the teachers held a Bachelor's degree, and 36% (n = 49) had an advanced degree. The major of the highest degree for 89 teachers was Early Childhood Education (n = 52) or Elementary Education (n = 37), and the remainder (n = 46) majored in another area. The average teacher had 15 years of teaching experience (SD = 9.14). Characteristics of teachers and their classrooms are presented in Table 1. No information is available concerning teachers who did not volunteer to participate, thus we were unable to determine whether the teachers in this study differed in any relevant ways from those who elected not to participate.

The participating 135 teachers taught in state-funded classrooms designed specifically to serve 4-year-old children exhibiting social and/or economic risks. Local recipients of state funding (i.e., elementary schools) have some flexibility in identifying children who are eligible for participation in their programs, although state guidelines suggest that children exhibiting the following risk factors be prioritized for participation: 1) poverty; 2) homelessness; 3) parents or guardians are school dropouts, have limited education, or are chronically ill; 4) family stress as evidenced by poverty, episodes of violence, crime, underemployment, unemployment, homelessness, incarceration, or family instability; 5) developmental problems, or 6) limited English proficiency. Overall, half of the children were female, and the average age of children at the beginning of preschool (August 15) was 4 years, 4 months (SD = 4 months). Forty-six percent of the children were African-American/Black, 29% were Caucasian/White, and 12% were Hispanic/Latino. The remaining children's ethnic/racial identities were Multi-Racial (7%), Asian (4%), and Other (2%). One out of five children spoke a language other than or in addition to English in their homes. Mothers of the children averaged 12.8 years of education (SD = 2.05), and the average annual family income was approximately $26,500 ($SD$ = $20,250).

General Procedures

Teachers elected to participate in this study at the invitation of their school district. Participation in the larger study involved receiving professional development over the academic year focused on high quality implementation of a language and literacy curriculum. Near the start of the academic year, teachers completed a 2-day professional development workshop that opened with a 1.5-hr discussion of quality professional development (e.g., coherent and sustained focus). This opening discussion provided a rationale for teachers' participation in the larger ongoing study of curriculum implementation and the professional development that would occur for an academic year. Next, an approximate 2-hr session described six key areas of language and literacy development, reflecting the areas emphasized in the curriculum they would be implementing

during the academic year. Each area of development was defined, and research indicating the importance for addressing each within preschool programming was discussed; these instructional materials are available from the first author. Near the end of this session, teachers received guidance on how to build a weekly lesson plan that addresses each area and received a preview of the curriculum. Additional topics addressed subsequently focused on assessing children (discussion of measures used in the study), using the curriculum's website (with a tour of specific content available to teachers, including videos of high quality implementation), and improving the quality of teacher-child relationships. As these points suggest, discussion of high-quality language and literacy instruction was a minor component of this workshop; consequently, the data presented in this paper may be seen to represent business-as-usual practices when teachers utilize a scientifically-based curriculum and receive little explicit instruction in its quality implementation.

The curriculum implemented by teachers was the *My Teaching Partner- Language & Literacy Curriculum* (MTP-LL; Justice, Pullen, Hall, & Pianta, 2003). Consistent with other available preschool curricula designed to provide explicit supplemental instruction in language and literacy, it provides (1) a 36-week scope and sequence of six "high-priority" instructional targets in language and literacy appropriate for preschool children, (2) weekly lesson plans including specific objectives for addressing each of these targets and sample lesson scripts, and (3) supplementary materials and manipulatives for delivering lessons, including access to a companion website providing depictions of high-quality implementation. Teachers were asked to implement at least six lessons per week as a supplement to (but not a replacement of) the general curriculum framework used in the classroom, which was High/Scope for 81 teachers (60%), Creative Curriculum for 26 teachers (19%), and an "Other" curriculum for the remainder (n = 28, 21%).

Curriculum description—MTP-LL provides a 36-week scope and sequence for six targets of instruction, with selection of the targets informed by the work of the National Early Literacy Panel (see Lonigan, 2006), meta-analyses by Hammill (2004) and Scarborough (2002), and longitudinal studies of the relationship between specific early language and literacy abilities and later reading, language, and academic adjustment (e.g, Bryant, Maclean, & Bradley, 1990; Catts et al., 2001; Chaney, 1998; Gallagher et al., 2000; Storch & Whitehurst, 2002). The language and literacy targets addressed in MTP-LL include: (1) phonological awareness, (2) alphabet knowledge, (3) print awareness, (4) vocabulary and linguistic concepts, (5) narrative, and (6) pragmatics and social language. For each target, MTP-LL included a comprehensive nine-month map of 10 to 20 ordered instructional objectives derived from published curricula, textbooks, state standards, and empirical research.

To enable preschool educators to address these objectives in an explicit and systematic manner, MTP-LL provided sample weekly lesson plans that included 6 specific activities, one from each target area. Teachers could use the sample lesson plan or build their own weekly lesson plan by selecting from among 300 activities (each linked to a specific objective in language or literacy). Each lesson mapped onto a specific objective, and included a suggested script for implementing the lesson. Additionally, extension activities were included with each script to provide examples of how specific instructional objectives could be addressed throughout a variety of classroom activities. In addition, teachers were provided a comprehensive set of materials and manipulatives for use in implementing specific activities, including 50 storybooks, posters, tapping sticks (for phonological awareness activities), and picture cards (for vocabulary and narrative activities). Each lesson plan specified the materials needed, and all essential materials were provided to teachers in an implementation kit. Teachers were also provided access to a website that presented video demonstrations of exemplary implementation of many of the activities.

Curriculum fidelity

To monitor teachers' procedural fidelity in curricular implementation, teachers were asked to video themselves teaching every two weeks and to submit these videotapes to the research site. Teachers were provided a DVD-video camera, DVDs, a tripod, and stamped addressed mailers for this purpose, and were trained on use of the camera at the professional development workshop. Teachers were asked to rotate their bimonthly tapings to provide samples of both language and literacy lessons (one per month) and social/emotional activities (one per month), the latter corresponding to a separate goal of the larger project. Consequently, teachers submitted a video sample of one language or literacy lesson each month. In collecting these videos, teachers were asked to film a few minutes prior to the start of the lesson, the entire lesson itself, and the time following the lesson up to at least 30 minutes.

In the present study, we analyzed the first DVD submission of teachers corresponding to a language (39% of sample) or literacy lesson (61% of sample). Language lessons addressed one or more objectives related to vocabulary and linguistic concepts, narrative, and pragmatics and social language, whereas literacy lessons addressed one or more objectives related to phonological awareness, alphabet knowledge, or print awareness. On average, these tapes were collected by teachers eight weeks into the academic year (mid October), with a range of four weeks to about 14 weeks. (After these initial tapes were collected from teachers, some randomly-selected teachers received professional development designed specifically to enhance the quality of language and literacy instruction while implementing the new curriculum.)

Measures

Three types of measures were used to measure teacher and classroom characteristics, procedural fidelity for curriculum implementation, and quality of language and literacy instruction.

Teacher and classroom characteristics—Teachers were asked to complete three questionnaires about themselves. The first was a demographic questionnaire requesting information from teachers about their education, teaching experience, and recent professional development experiences. Teachers also provided information on the composition of children in their classrooms (see Table 1).

The second questionnaire, the *Modernity Scale* (also referred to as the Ideas about Raising Children Scale; Schaefer & Edgerton, 1985), examined teachers' beliefs about children. This 16-item Likert-type questionnaire is abbreviated from a longer 30-item scale that has been used in longitudinal studies of child care (available at http://secc.rti.org) to discriminate between "traditional" or relatively adult-centered perspectives on interactions with children and more "modern or progressive" child-centered perspectives. Scores are derived by computing the mean of all items, with child-centered beliefs reverse-scored. Teachers holding a more adult-centered view agreed with statements such as "Children must be carefully trained early in life or their natural impulses make them unmanageable." Teachers with more child-centered beliefs agreed with statements such as "Children should be allowed to disagree with their parents if they feel their own ideas are better." Cronbach's alpha was .78 in the present sample, similar to that reported for the entire questionnaire (NICHD ECCRN, 2006).

The third questionnaire, an abbreviated 7-item version of the *Teacher Self-Efficacy Scale* (TSES; Bandura, 1997), assessed teachers' sense of efficacy regarding management and motivation of children in their classrooms. The instrument was designed to identify factors

that present difficulties to teachers in their instruction. The present items were selected from a larger set of 21 items used by the NICHD ECCRN(see http://secc.rti.org for a copy of this measure); the larger questionnaire studies self efficacy across five dimensions of instruction, whereas the 7-item version used in this study looked specifically at classroom management and pupil motivation. The response scale ranged from "Nothing" to "A great deal" and items included questions such as "How much can you do to get through to the most difficult students?" and "How much can you do to keep students on task on difficult assignments?" The internal consistency reliability (alpha) for the 7-item scale was 0.85, which is comparable to the reliability of the tool as a whole (NICHD ECCRN, 2006).

Procedural fidelity—The *MTP-LL Implementation Checklist* was developed specifically for this study to capture the degree to which teachers adhered to step-by-step procedures for implementing the language and literacy lesson plans of the curriculum as written. The checklist was completed by a trained coder while viewing each teacher's submitted DVD of implementation of a language or literacy lesson. Coders watched the DVD using iMovie software and entered codes on an electronic implementation checklist connected to an online database. Before coding independently, coders were trained on the implementation checklist using three master coded videotapes and were required to match 80% of the master codes.

The checklist comprised nine items, each scored as 1 (present) or 0 (not present), and was similar to other procedural fidelity tools designed to identify the absence or presence of explicitly-defined observable features of implementation for instructional approaches (e.g., Justice & Ezell, 2002; Wasik et al., 2006) and curricula (e.g., Dodge, Colker, & Heroman, 2002). Many procedural fidelity tools are used to identify whether or not key elements of an approach/curriculum are used by a trained interventionist (e.g., teacher), and do not attempt to identify the level or quality of implementation (see Wasik et al., 2006). The *MTP-LL Implementation Checklist* was developed by studying lesson plans within the MTP-LL curriculum and identifying a minimum set of discrete features that would identify whether or not a teacher was adhering to the procedures of a given plan. Nine features were identified and included on the checklist: (1) all students can see the teacher; (2) teacher calls children's attention to and/or makes an explicit transition to the lesson; (3) teacher language is in general accordance to the script in the lesson plan; (4) teacher has all listed materials available and easily accessible; (5) all listed materials are used in general accordance with the lesson plan; (6) there are no major distractions and/or disruptions during the lesson; (7) teacher makes explicit attempts to engage the children's participation in the lesson; (8) teacher summarizes the children's performance and task engagement or provides other formal ending to task; and (9) all components of the lesson are completed.

Descriptive data for each item on the checklist are provided in Table 2, with language and literacy lessons considered separately. Additionally, for analytical purposes, we differentiated items into those concerned with organizing the lessons, which we refer to as Fidelity to Routine (items 1–5; max score = 5 points), and those concerned with delivering the lessons, which we refer to as Fidelity to Teaching (items 6–9; max score = 4 points). A total score was calculated for each set of checklist items by summing the number of points received by a teacher for a given lesson.

Inter-rater reliability for scoring lesson plans using the fidelity checklist was assessed by comparing ratings of the same lesson made independently by two observers for 36 randomly-selected tapes. Raters assigned the same binary rating for 89% of the nine items on the checklist, and overall scores for the fidelity checklists were within one point for 81% of the double-coded tapes.

Quality of language and literacy instruction—Each of the recorded lessons submitted by teachers was also scored for the quality of literacy and language instruction using two newly-developed scales of the *Classroom Assessment Scoring System* (CLASS: Pianta, La Paro, & Hamre, 2004): Language Modeling and Literacy Focus. Development of the original CLASS instrument followed from extensive classroom observation work conducted as a part of the NICHD Study of Early Child Care (NICHD ECCRN, 2002; 2005) and the NCEDL Multi-state and SWEEP studies of state-funded preschool programs (Early et al., 2005). These studies provided strong evidence that ratings of the *quality* of the classroom environment, including relational processes between teachers and children, are consistently associated with students' social and academic performance (e.g., Hamre & Pianta, 2005; NICHD ECCRN, 2003; Pianta et al., 2005). Thus, the original CLASS scales and the two new scales focus almost exclusively on dynamic aspects of the classroom, particularly the interactions between teachers and students. For each scale, observers assign a single score from 1 to 7, spanning a continuum of quality that encompasses low (1, 2 points), mid (3, 4, 5 points), and high (6, 7 points) quality.

The Language Modeling and Literacy Focus scales, new additions to the CLASS tool, were developed through careful analysis of the empirical and theoretical literature describing the types of teacher-child interaction that promote positive language and literacy development in young children (e.g., Bunce, 1995; Dickinson & Sprague, 2002; Girolametto & Weitzman, 2002; Justice & Ezell, 2002; Roberts et al., 1989; Smith & Dickinson, 1994). The Language Modeling scale focused specifically on teacher use of techniques during instruction known to accelerate language growth in children, such as asking open-ended questions; repeating, extending, and recasting children's utterances; using advanced vocabulary; and engaging in extended conversations with children. The Literacy Focus scale examined the extent to which teacher instruction featured evidence of systematicity, explicitness, and purposeful integration. A more thorough description of the scales is provided in Table 3. Each lesson plan was coded with the Language Modeling and Literacy Focus scales, with trained coders assigning a rating along a 1 to 7 scale based on the extent to which teachers used these language or literacy techniques in their instructional interactions with children. All coders were trained on these scales using three videos master coded by scale developers. Prior to coding they took a reliability test of three additional segments on which they had to score within-1 of the master code on 80% of codes, following the same training procedures that have been used in at-scale studies utilizing the CLASS tool (e.g., La Paro et al., 2004). Coders entered their scores directly into two electronic scales connected to an online database.

Inter-rater reliability for the Language Modeling and Literacy Focus scales was computed by comparing ratings of 52 randomly-selected lessons (39% of the total) made by two independent observers, 36 language lessons for assessing reliability of the Language Modeling scale, and 16 lessons for the Literacy Focus scale. Along the 1 to 7 rating scale, 83% of the language lessons (30/36) received Language Modeling ratings that were within 1 point of each other, and 88% percent of the literacy lessons (14/16) received Literacy Focus ratings by the two observers that were within 1 point of each other. This level of agreement is comparable to the inter-rater reliability data reported for the other scales of the CLASS that have been used in large scale observational studies of preschool classrooms (see La Paro et al., 2004).

Results

A total of 135 preschool teachers were observed via videotape administering a literacy lesson ($n = 83$) or a language lesson ($n = 52$) within the classrooms. Literacy lessons addressed one or more objectives related to phonological awareness, alphabet knowledge, or

print awareness; language lessons addressed one or more objectives related to vocabulary and linguistic concepts, narrative, or pragmatics and social language. Across the 135 lessons observed, instruction was characteristically of low quality. Figures 1 and 2 depict the distribution of scores along the 1 to 7 rating scale for the Language Modeling and Literacy Focus scales, respectively, for all 135 language and literacy lessons. The average Language Modeling rating was 2.59 (SD = 1.4) and 59 out of 135 lessons (54%) received ratings of 1 or 2. Similarly, the average Literacy Focus rating was 2.61 (SD = 1.26) and 60 out of 135 lessons (44%) received ratings of 1 or 2.

Table 2 compares quality ratings for language lessons (n = 52) and literacy lessons (n = 83) separately. Language lessons received slightly higher scores on the Language Modeling scale (M = 3.06, SD = 1.35) than literacy lessons (M = 2.33, SD = 1.13), t (134) = 3.40, p < .01, as would be expected. Similarly, literacy lessons received slightly higher scores on the Literacy Focus scale (M = 2.83, SD = 1.41) than language lessons (M = 2.19, SD = 1.30), t (134) = 2.64, p < .01.

Despite the overall low ratings of the quality of language and literacy instruction during these language and literacy lessons, there was considerable variability in instructional quality across teachers, as shown by the standard deviations. Relatively few teachers, however, delivered instruction in the high range: only four of the 52 language lessons (8%) were coded as high level (see Table 2) on the Language Modeling scale, and only five of the 83 literacy lessons (6%) were rated as having a high quality Literacy Focus. The Language Modeling scores therefore show that the average teacher when implementing a language lesson rarely used such strategies as asking open-ended questions, repeating and extending student utterances, or introducing advanced vocabulary. The Literacy Focus scores suggest that the average teacher when implementing a literacy lesson rarely used explicit terminology to describe the units of oral and written language, seldom specified the goals of the lesson or its relationship to previous concepts learned, and did not emphasize the relationship between elements of the code and the broader purpose of written or spoken language.

In Table 4, we present correlation coefficients that show (among other things) the interrelationships among quality ratings and characteristics of teachers, classrooms, and the lessons. Quality of language modeling and literacy focus were not significantly interrelated, r = .07, p > .05, suggesting that teachers receiving high scores on one scale do not necessarily receive high scores on the other scale. And, as the correlation coefficients show, quality of language and literacy instruction does not seem to exhibit a strong association with most structural aspects of preschool classrooms (e.g., teacher experience, proportion of limited English proficient children in the classroom). Exceptions were noted for quality of literacy instruction and its relation to teachers' reported sense of self-efficacy, r = .20, p < .05, and adherence to adult-centered ideas, r = .20, p < .05. Although the two components of fidelity (fidelity to routine, fidelity to teaching) were significantly interrelated, r = .23, p < .01, fidelity to routine had no relationship with quality of language and literacy instruction; fidelity to teaching was not related to quality of language instruction, r = −.01, although it was moderately linked to the quality of literacy instruction, r = .23, p < .01.

To more explicitly test the potential contributions of teacher characteristics, classroom characteristics, and type of lesson observed for the quality ratings, 13 predictor variables were included in multiple regression models to examine the extent to which the predictors were associated with the two dimensions of quality (see Table 5). Quality of language instruction was associated with only two teacher characteristics. First, teachers' level of education was negatively associated with language-instruction quality, such that teachers with advanced degrees received significantly lower ratings of language modeling compared

to teachers with bachelor's degrees; the effect size describing the magnitude of relations is consistent with a medium-sized effect ($\eta 2 = .064$), based on Cohen (1977) whereas a small effect is .01, a medium effect is .06, and a large effect is .14. Second, teachers who attended more workshops or trainings that addressed children's language and literacy development received higher ratings of language modeling; this effect was medium in size ($\eta 2 = .052$), No other variables, including teachers' psychological characteristics (self-efficacy, ideas about children), professional demographics (field of study, years of experience) and classroom characteristics (characteristics of children enrolled, curriculum type), were associated with the quality of language instruction, with the exception of the type of lesson observed. Measures of procedural fidelity made no contribution to explaining variance in quality of language instruction. Approximately 20% of the total variance in the quality of language instruction was explained by characteristics of teachers, their classrooms, and the lessons they implemented.

Examination of predictors for quality of literacy instruction showed that several variables predicted instructional quality. The quality of literacy instruction was not associated with teachers' professional demographic characteristics (level of education, field of study, participation in professional development workshops or trainings, or years of experience), although teachers with higher self-efficacy ratings and teachers with more adult-centered beliefs received significantly higher ratings of the quality of literacy instruction, both consistent with medium-sized effects ($\eta 2 = .059$ and $\eta 2 = .058$, respectively). In addition, higher quality literacy instruction was observed in classrooms with a higher percentage of children who had individualized education plans (IEP), an effect that was between small and medium in size ($\eta 2 = .035$). Procedural fidelity ratings – specifically those items focused on teaching – also served as a unique predictor for quality of literacy instruction, as was the type of lesson (implementation of literacy lesson vs. language lesson), with estimated effect sizes of $\eta 2 = .043$ and .045, respectively. One-fourth (25%) of the total variance in quality of teachers' literacy instruction was explained by these teacher, classroom, and lesson characteristics.

Discussion

The primary aim of this research was to characterize the quality of language and literacy instruction occurring in preschool classrooms serving at-risk pupils upon adoption of a new curriculum. This research contributes to an applied body of work developed in response to accumulating evidence showing that children who enter kindergarten with well-developed language and literacy skills perform better in beginning reading instruction relative to those with less-developed skills, the latter facing substantial risk for timely achievement of skilled and fluent reading (e.g., Compton, 2000; O'Connor & Jenkins, 1999). Participation in preschool programs providing high quality language and literacy instruction is considered one of the most viable mechanisms for improving at-risk children's transition to reading instruction and reducing their vulnerability for later reading difficulties (see Snow, Burns, & Griffin, 1998). Despite the proliferation of scientifically-based preschool language and literacy curricula, it is currently unclear whether implementation of a curriculum is associated with high levels of instructional quality, a question we also considered.

The first major finding of this study was that the quality of language and literacy instruction we observed within 135 preschool classrooms was characteristically low. More specifically, few teachers involved in this study provided language instruction featuring use of evidence-based strategies associated with accelerated language development (e.g., asking open-ended questions, repeating and extending children's utterances, modeling advanced vocabulary). Likewise, few teachers provided literacy instruction that was explicit, systematic, and purposeful. This finding is of concern as children's exposure to instruction characterized by

high quality ratings – including abstract vocabulary (van Kleeck, Gillam, Hamilton, & McGrath, 1997; van Kleeck, Vander Woude, & Hammett, 2006), open-ended questions (Girolametto & Weitzman, 2002; Whitehurst et al., 1988), and explicit description of phonological structures and print concepts (Justice et al., 2003; Justice & Ezell, 2002; van Kleeck et al., 1998) - have been linked to accelerated performance on measures of language comprehension and expression, alphabet knowledge, and phonological awareness. Although this study did not use experimental methods and consequently cannot study the linkages between teachers' participation in professional development in the fall of the year and instructional quality, it is disturbing that quality was low even after workshop training.

While it is troubling to see a large number of teachers receiving low quality ratings for their implementation of language and literacy lessons, it was not entirely unexpected. Studies that have examined the quality of language and literacy activities in preschool classrooms have shown these to be quite variable, including characteristics of teacher-child conversations and the way in which teachers read books with children during small- and large-group sessions (Dickinson & Sprague, 2002; Girolametto, Hoaken, Weitzman, & van Lieshout, 2000; Graue, Clements, Reynolds, & Niles, 2004; La Paro et al., 2004; McGill-Franzen, Lanford, & Adams, 2002). In general, ratings of preschool instruction are moderate to high when they focus on the general climate of the classroom or teacher sensitivity to students, but are low to mid range when looking at teachers' use of more explicit techniques that may promote children's concept and language development (Girolametto et al., 2000; Girolametto & Weitzman, 2002; La Paro et al., 2004). Meisels (2006) suggests that this variability results in part from the lack of a common metric for characterizing acceptable expertise in instruction among early childhood professionals (in contrast to, say, the medical profession) to which early childhood training programs would adhere.

The second major finding was that only a few characteristics of teachers and classrooms were predictive of language and literacy instructional quality. Our findings converge with recent research finding few associations between teachers' education, major, and credentials and global measures of instructional quality in preschool classrooms (Early et al., 2006). In the present work, only two predictors of higher quality language instruction were identified, namely that holding an advanced degree was a negative predictor and the number of language and literacy development workshops teachers had attended was a positive predictor. The finding that an advanced degree was associated with lower ratings for quality of language instruction was both paradoxical and surprising. Given that the highest degree earned for most of our teachers (61%) was not in early childhood education, this finding may reflect the fact that our more credentialed teachers did not necessarily have more knowledge concerning early childhood learning and development. That is, perhaps those teachers with advanced degrees had received less explicit training in the methods of working with the preschool population, resulting in advanced degree status serving as a marker for instructional differences.

The finding concerning the positive relationship between teachers' attendance at language and literacy workshops and quality of language instruction was an encouraging one. We cannot, however, make causal conclusions based on these data. It may be that attendance in such workshops increased teachers' use of quality language modeling techniques, but it may also be true that teachers who exhibit high-quality instruction and who are good teachers of language are especially drawn to such workshops. Research provides some guidance concerning what high-quality professional development in the area of language instruction looks like (e.g., Girolametto, Weitzman, & Greenberg, 2003; Wasik et al., 2006), but we have insufficient detail on the workshop experiences of the teachers to draw any firm conclusions regarding this finding.

When attempting to predict quality literacy instruction, results showed that teachers who reported a higher sense of self efficacy and held more adult-centered ideas received higher ratings for quality of literacy instruction. Our findings show a potentially important linkage between teachers' beliefs and their actual practices in literacy instruction. Given that the rating scale used to characterize high-quality literacy instruction prioritized instruction that was systematic and explicit, it makes sense that teachers who held more adult-centered beliefs would receive higher scores than teachers who held more child-centered beliefs. Teachers adhering to a more child-centered philosophy may be reluctant to deliver instruction with a specified scope and sequence and that seems overly didactic, as high quality literacy instruction may appear.

The third major finding was that teachers exhibited high levels of procedural fidelity to the prescribed language and literacy curriculum following minimal training in its implementation. Adherence to lesson plans and general guidelines curriculum implementation exceeded 90% for most aspects of fidelity measured. Although this is an interesting finding, it must be considered in light of additional findings showing that curriculum fidelity was not generally associated with the quality of instruction. Fidelity to specific implementation routines (e.g., calling children's attention to the lesson) had no predictive value when considering instructional quality, although fidelity to teaching aspects of the lessons was a positive predictor of quality of literacy instruction.

This is an interesting finding that brings to mind some of the differences discussed early in this article about the distinction between high-quality language instruction and high-quality literacy instruction. Language instruction that is of high quality requires adults to provide well-tuned, responsive conversational input to children that features use of open-ended questions, expansions, advanced linguistic models, and recasts (see Girolametto et al., 2003). Because a key characteristic of high-quality language instruction is linguistic responsiveness of adults to children within dynamic exchanges, high-quality language instruction is virtually impossible to script procedurally. By contrast, high-quality literacy instruction features explicit and direct instruction that systematically teaches children about the code-based characteristics of written language, to include both phonological and print structures. High-quality teachers systematically link previously-learned concepts to novel concepts and use a precise and explicit metalinguistic terminology to make abstract literacy concepts more concrete. These features are more amenable to procedural scripting compared to characteristics of high-quality language instruction, and it stands to reason that adherence to a scripted plan could result in relatively high ratings for literacy instruction that privilege systematic and explicit instruction as quality indicators.

Together, these results show that (a) teachers can achieve high fidelity to a structured curriculum with fairly minimal training in its implementation, (b) instructional quality in language and literacy is largely if not completely dissociated from fidelity of implementation of a structured language and literacy curriculum and delivery of its lesson plans, and (c) it appears far easier to achieve procedural adherence to a language and literacy curriculum than it is to achieve high quality language and literacy instruction within preschool classrooms. Although this study did not feature experimental methods, we also tentatively suggest that teachers' participation in a brief two-day workshop is insufficient in elevating the quality of language and literacy instruction within preschool classrooms. Moreover, findings suggest that use of a curriculum that provides an evidence-based scope and sequence of instruction, well-defined lesson plans, and quality supplementary materials does not automatically lead to improved processes of instruction, particularly in the area of language instruction. Lastly, measurements of procedural fidelity of curriculum or lesson-plan implementation, particularly those that look at broad strokes of implementation, may

provide little information on the quality of language and literacy instruction taking place within a classroom.

Limitations

Four limitations warrant note. First, this study involved one state's publicly-funded pre-kindergarten programs. Although it involved a large number of teachers and classrooms, it is not clear that results can be generalized to other settings, such as privately-funded programs, programs funded by other public sources, and programs serving pupils of a different demographic. The extent to which findings are representative of teachers who are less-credentialed or are teaching in other settings is not known.

Second, this study involved investigation of instructional quality when teachers implemented a single scientifically-based preschool language and literacy curriculum. We cannot be sure that our results concerning instructional quality would apply to other currently-available preschool language and literacy curricula, although features of the curriculum used in this study were similar to those of many commercial curricula.

Third, measurement of the quality of language and literacy instruction employed two global ratings scales. The extent to which these global ratings would mirror results derived from other analytical approaches, such as time-sampling or event coding, cannot be determined. It may be that use of other measurement approaches involving more nuanced analyses of teacher-child interactions would have had different results.

Fourth, this study relied upon videotapes captured and submitted by the participating teachers for assessment of instructional quality. It is not clear that the sessions submitted by teachers are characteristic of instruction that occurs within these classrooms when videotaping is not occurring. It is possible that the videotaped sessions represent *higher* levels of quality than is typical, because teachers know that their instruction will be analyzed by research personnel and thus they give their "best performance." Or, it is possible that the sessions represent *lower* levels of quality, because the teachers may be nervous and self-conscious about their instruction. Given the importance of such technology to conducting at-scale research and professional development, the validity of this methodology must be carefully studied.

Educational Implications

Meisels (2006) recently noted that early childhood educators and the instructional practices they employ are held to a notably high level of both scrutiny, driven in part by concerns of the value of public investments in early education and initiatives focused on ensuring that all children enter school "ready to learn." Meisels' observation is particularly pertinent given national data showing that a substantial proportion of American pupils fare poorly on measures of reading achievement (e.g., National Assessment of Educational Progress, 2003) and the belief that preventive programs may mitigate children's later risks for reading difficulties (see Snow et al., 1998). A growing literature is available to guide preschool teachers and administrators as they select specific language and literacy objectives and effective pedagogies to utilize in their programs. Also, an increasing number of scientifically-based language and learning curricula are available that package these objectives and pedagogies for implementation.

The present research shows that preschool teachers can readily implement a structured scientifically-based language and literacy curriculum following workshop training, but that doing so does not necessarily lead to high quality language and literacy instruction within their classrooms. Likewise, measurements of procedural fidelity, when they are of a broad-stroke nature, seem to provide little information on the quality of language and literacy

instruction that is taking place within a classroom. This has at least two important implications for practice, particularly the professional development (PD) of teachers. First, many PD programs utilize observational tools for organizing PD, whereby teachers are observed within their classrooms to evaluate linkages between what they learn in PD and what they do in the classroom. Our findings show the importance of ensuring that the observational tools used in such PD models are sensitive to the critical elements of high-quality language and literacy instruction. Second, this study indicates a need for intensive PD that is sustained over time and that emphasizes the conceptual knowledge and skills that teachers need to provide high-quality instruction to children (Garet, Porter, & Desimone, 2001). Our findings show that procedural aspects of curriculum implementation require little training. PD efforts should thus focus elsewhere, as it seems unlikely that PD content focused on implementing static activities or using specific materials substantially elevates the quality of language and literacy instruction.

Concerning the latter point, the need for sustained technical assistance for teachers to adopt evidence-based approaches and programs that effectively accelerate children's language and literacy growth may be particularly critical given that the use of systematic and explicit instruction to address these areas may require a cultural shift for teachers who were trained to utilize more child-centered approaches. Although research provides useful guidance for understanding what high-quality language and literacy instruction looks like (e.g., Justice et al., 2003; Wasik et al., 2006), many teachers in the field may not have received explicit and systematic instruction themselves on how to implement these powerful interventions within their own classrooms.

To sum, investigations that evaluate the impact of sustained and process-oriented models of professional development upon teachers' instructional quality are greatly needed if we are to elevate the quality of instruction in preschool programs serving at-risk pupils. An example of such was recently discussed by Hadden and Pianta (2006), who described an intervention in which preschool teachers received two years of coaching from university consultants conducted over the internet. Coaches used video submissions of classroom instruction by teachers to analyze the process of instruction and to guide teachers in improved instruction. Empirical investigation of this and other innovative techniques (see Adger, Hoyle, & Dickinson, 2004) for improving instructional quality in preschool classrooms is critical to the successful implementation of the many state and federal efforts that seek to expand children's access to quality preschool programs.

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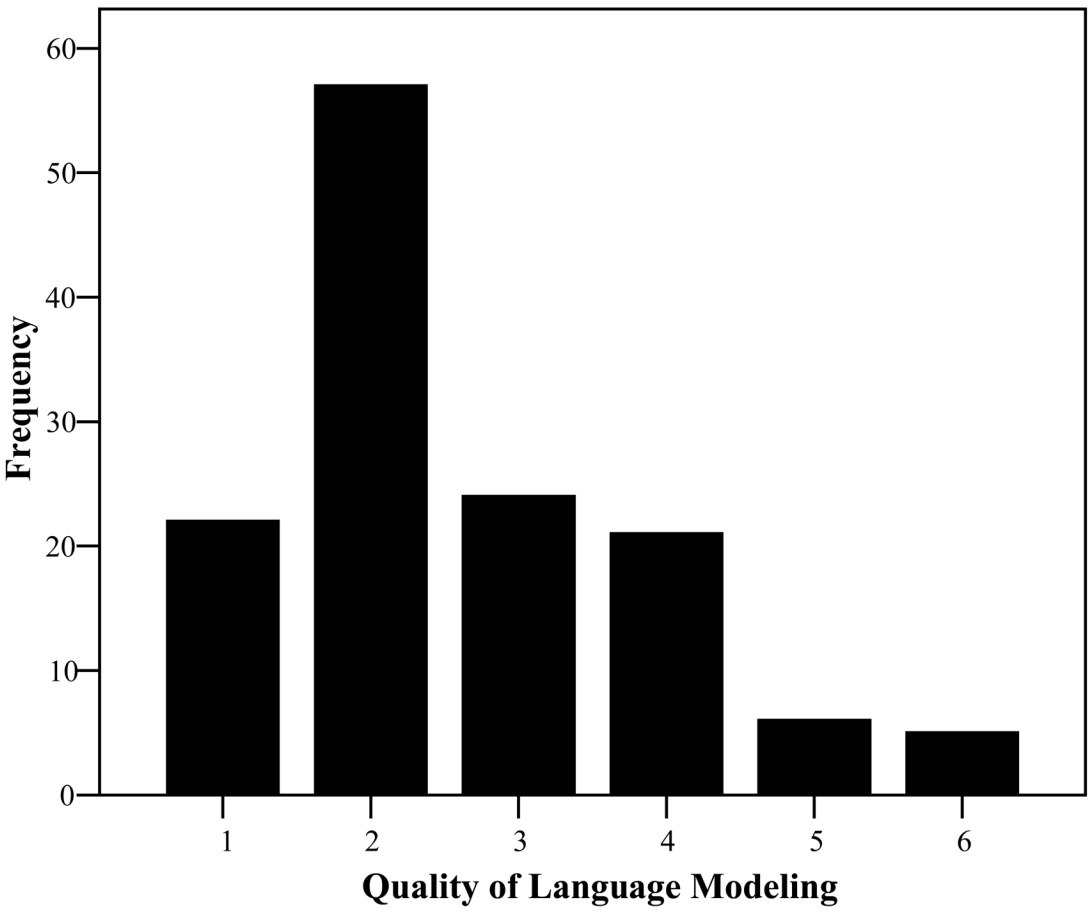

Figure 1.
Frequency distribution of scores on the quality of language modeling scale

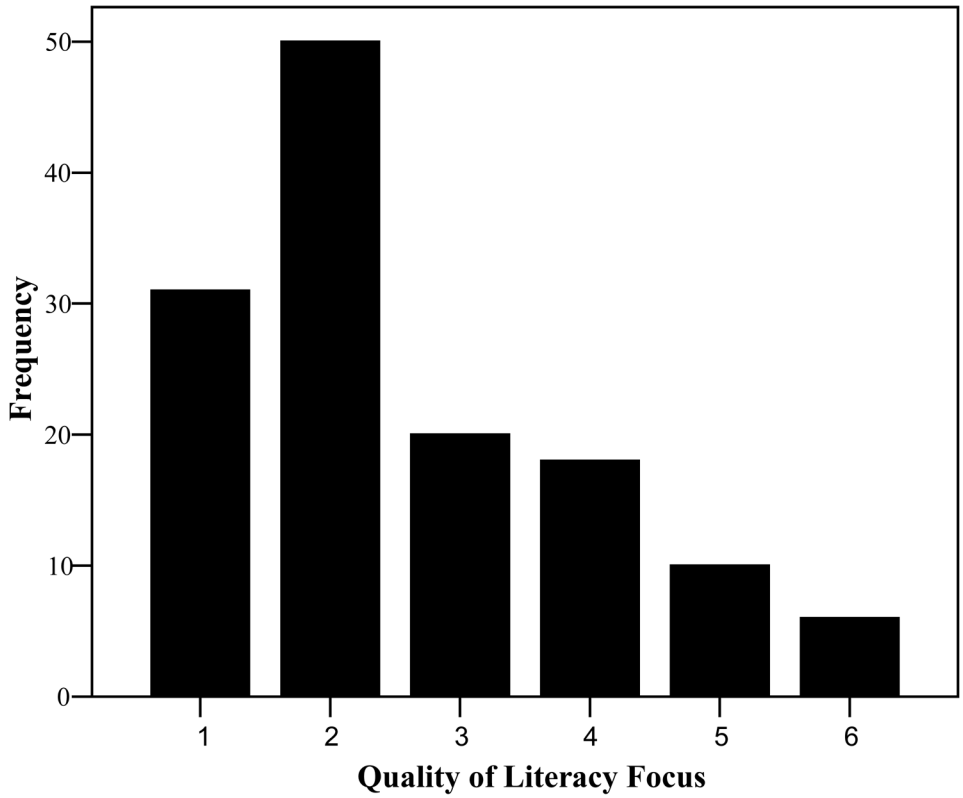

Figure 2.
Frequency distribution of scores on the quality of literacy focus scale

Table 1

Characteristics of Teachers, Classrooms, and Observed Lessons (n = 135)

	n	%	*M*	*SD*	Range
Teacher Characteristics					
Highest Degree Type					
Bachelor's	86	64			
Advanced	49	36			
Major of Highest Degree					
Early Childhood Education	52	39			
Elementary Education	37	27			
Other	46	34			
Number of Workshops			3.47	2.56	0–8
Total Years of Teaching Experience			15.0	9.14	1–37
Self-Efficacy			4.39	0.48	3.2–5.0
Adult-Centered Ideas			2.36	0.60	1.3–4.0
Classroom Characteristics					
Percentage of Children with LEP			12.7	25.8	0–100
Percentage of Children with IEP			9.0	16.6	0–100
Activity Characteristics					
Number of Children Participating			10.9	3.24	2–16
Lesson Type					
Language	52	39			
Literacy	83	61			

Table notes: Number of workshops = Teacher report of number of language and literacy workshops attended in previous year; Self-Efficacy = teacher scores on the Modernity Scale (Schaefer & Edgerton, 1985); Adult-Centered Ideas = teacher scores on the Teacher Self-Efficacy Scale (Bandura, 1997); LEP = limited English proficiency; IEP = Individualized Education Plan

Table 2

Procedural Fidelity and Quality of Instruction of Language and Literacy Lessons (n = 135)

	Language Lesson (n = 52)			Literacy Lesson (n = 83)			Mean difference t-test	
Measure	**%**	***M***	***SD***	**%**	***M***	***SD***	***t***	***p***
Procedural Fidelity								
Routine Activities								
All students can see the teacher	100			99				
Teacher calls children's attention to and/or makes an explicit transition to the activity	98			99				
Teacher has all listed materials available and easily accessible	96			90				
All listed materials are used in general accordance with the activity plan	92			86				
There are no major distractions and/or disruptions during the activity	79			76				
Teaching Activities								
Teacher language is in general accordance to the script in the activity plan	87			83				
Teacher makes explicit attempts to engage the children's participation in the activity	98			100				
Teacher summarizes the children's performance and task engagement or provides other formal ending to task	79			78				
All components of the lesson are completed	92			86				
Procedural Fidelity Total								
Routine Activities (0–5)		4.65	0.52		4.49	0.72	−1.49≠	.138
Teaching Activities (0–4)		3.56	0.83		3.47	0.79	−0.62	.537
Quality of Instruction (1–7)								
Language Modeling		3.06	1.35		2.33	1.13	−3.40***	.001
Low Quality (1–2)	40			70				
Medium Quality (3–5)	52			29				
High Quality (6–7)	8			1				
Literacy Focus		2.19	1.30		2.83	1.41	2.64**	.009
Low Quality (1–2)	67			55				
Medium Quality (3–5)	21			39				
High Quality (6–7)	2			6				

*p ≤ .05.

**p ≤ .01.

***p ≤ .001.

#Variances were significantly different ($p = .006$)

Table 3

Description of Major Indicators of Low, Mid, and High Quality Language Modeling and Literacy Focus

	Low (1, 2)	Mid (3, 4, 5)	High (6, 7)
Language Modeling Indicators			
Frequent Conversation	Teacher rarely converses with students	Teacher sometimes converses with students	Teacher often converses with students
Student-Initiated Language	When conversations occur they are teacher-controlled	Conversations between teachers and students are sometimes teacher-controlled and sometimes more student initiated	Although there is a mix of teacher and student talk, there is a clear and intentional effort by the teacher to promote students' language use
Open-Ended Questions	The majority of the teacher's questions are close-ended	Teacher asks a mix of close-ended and open-ended questions	The teacher asks many open-ended questions
Repetition and Extension	Teacher rarely, if ever, repeats or extends students' responses	Teacher sometimes repeats or extends students' responses	Teacher often repeats or extends students' responses
Self & Parallel Talk	Teacher rarely maps his/her own actions and the students' actions through language and description	Teacher occasionally maps his/her own actions and the students' actions through language and description	Teacher consistently maps his/her own actions and the students' actions through language and description
Advanced Language	Teacher does not frequently use advanced language with students	Teacher sometimes uses advanced language with students.	Teacher often uses advanced language (e.g., abstract vocabulary and concepts) with students.
Literacy Focus Indicators			
Explicit	Teacher rarely uses terms and strategies that make clear the relationship between oral or written language and the names of specific units or tasks (e.g., letter, rhyme, sound, word).	Teacher inconsistently or only occasionally uses terms that make clear the relationship between oral or written language and the names of specific units or tasks (e.g., letter, rhyme, sound, word).	The teacher uses terms and strategies that make clear the relationship between oral or written language and the names of specific units or tasks (e.g., letter, rhyme, sound, word).
Purposeful	Teacher does not make clear the connection between code-based activities and the broader purpose of written or spoken communication.	Teacher occasionally relates code-based activities to the broader purpose of written or spoken communication.	Teachers link the code-based activities (learning to read and write letters, knowing which words rhyme, knowing how many syllables are in a word) to the broader purpose of written or spoken communication
Systematic	Activities are not well planned to engage children in letters, words, or phonemes; the linkage between the current goals and previously learned goals is not specified or evident	Activities are sometimes planned and organized in a way that engages children in letters, words, or phonemes, and occasionally links the current goals to previously learned concepts or skills	Activities are well-planned and sequenced and teachers link the current goals to previously learned concepts or skills

Table 4

Correlations between Teacher Characteristics, Classroom Characteristics, Lesson Type, Procedural Fidelity, and Quality of Instruction of Language and Literacy Lessons

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1-Procedural fidelity: Routine	--	0.23**	−0.01	0.02	0.09	−0.02	0.06	0.09	0.04	−0.07	0.11	0.02	−0.08	0.12
2-Procedural fidelity: Teaching		--	0.14	0.23**	0.03	−0.14	0.12	0.05	0.14	−0.02	−0.09	0.05	−0.03	0.05
3-Quality of language modeling			--	0.07	−0.21*	−0.04	0.15	0.04	0.06	−0.05	0.06	−0.03	0.04	0.28***
4-Quality of literacy focus				--	−0.05	−0.17	−0.10	−0.00	0.20*	0.20*	−0.06	0.09	0.14	−0.22**
5-Advanced degree					--	0.10	0.25**	0.11	0.20*	0.00	0.21*	0.08	−0.21*	−0.12
6-Major in ECE						--	0.18*	0.17	0.06	−0.00	0.06	0.00	0.09	0.06
7-Workshops-Language and Literacy							--	0.20*	0.13	0.06	0.03	−0.18*	0.04	0.03
8-Years of teaching								--	0.08	0.08	0.02	0.02	−0.01	−0.03
9-Self-efficacy									--	−0.06	0.00	−0.07	0.08	0.04
10-Adult-centered ideas										--	−0.34***	−0.14	0.22*	−0.08
11-Percentage of children with LEP											--	−0.10	−0.08	−0.04
12-Percentage of children with IEP												--	−0.31***	−0.02
13-Number of children participating													--	−0.08
14-Language lesson														--

Note: $p \leq .05$.

** $p \leq 01$.

*** $p \leq .001$.

Table 5

Teacher, Classroom, and Activity Characteristics Associated with Teacher's Quality of Activity Implementation, Language Modeling, and Literacy Focus during Language or Literacy Activities (n = 135)

	Quality of Language Modeling				Quality of Literacy Focus			
	B	**SE**	**p**	**η2**	**B**	**SE**	**p**	**η2**
Teacher Characteristics								
Advanced degree	−0.71**	0.25	.005	.064	−0.30	0.27	.269	.010
Major in EE (1)/Major in ECE (0)	0.18	0.28	.510	.004	0.51	0.30	.091	.023
Major in Other (1)/Major in ECE (0)	0.19	0.25	.451	.005	0.30	0.27	.266	.010
Workshops/trainings—Language and Literacy	0.11*	0.04	.011	.052	−0.03	0.05	.603	.002
Years of teaching experience	0.01	0.01	.695	.001	−0.00	0.01	.801	.001
Self-efficacy	0.13	0.23	.560	.003	0.68**	0.25	.007	.059
Adult-centered ideas	0.03	0.19	.865	.000	0.57**	0.21	.007	.058
Classroom Characteristics								
Percentage of children with LEP	0.70	0.45	.121	.020	0.53	0.48	.275	.010
Percentage of children with IEP	0.43	0.68	.531	.003	1.53*	0.73	.038	.035
Activity Characteristics								
Number of children participating	0.01	0.04	.738	.001	0.04	0.04	.253	.011
Language activity (1)/Literacy activity (0)	0.64**	0.23	.005	.062	−0.57*	0.24	.019	.045
Fidelity routine activities	−0.13	0.17	.426	.005	0.01	0.18	.938	.000
Fidelity teaching activities	0.18	0.14	.201	.013	0.34*	0.15	.022	.043
Total Variance Explained (R^2)		.200				.249		

* $p \leq .05$.

** $p \leq .01$.

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