Implementation of a Course Focused on Language and Literacy Within Teacher–Child Interactions: Instructor and Student Perspectives Across Three Institutions of Higher Education

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Abstract:

Research suggests that teachers' interactions with preschool-age children have a significant influence on what children learn and the skills they develop. Additional research is needed to systematically determine the types of professional development that can help teachers learn effective teaching practices. This study is part of a larger effort to document the impact of a professional development model in which teachers learn how to implement effective teaching practices operationalized using the *CLASS* observation measure. A course developed by the National Center for Research on Early Childhood Education (NCRECE) was implemented in three higher education teacher preparation programs. This article describes the process of implementing the course and documents instructor and student perspectives on course delivery, content, and their learning. Results suggest that professional development in the form of a standardized course may be an effective means for presenting content related to language and literacy instruction within the context of information about effective teaching practices. Data from the study also indicate challenges associated with delivering a standardized course within multiple institutions of higher education.

Keywords: Teacher education | Early childhood education | Teaching practices | Professional Development | Literacy | Language | Learning

Article:

Teachers who establish positive relationships with children and intentionally facilitate children's learning within activities have positive effects on children's social-emotional and preacademic skills (Hamre & Pianta, 2001;Howes et al., 2008; Mashburn et al., 2008, National Council on Teacher Quality [NCTQ], 2004; NICHD, ECCRN, 2000). Unfortunately, recent research indicates that there is significant unevenness in teachers' effectiveness in the classroom. Although some teachers provide high-quality experiences, many other teachers' practices are rated low on measures of quality and effectiveness. Concomitantly, the children in these classrooms tend to have poor outcomes on a number of indicators of early learning and development (NICHD, ECCRN, 2002;Peisner-Feinberg & Burchinal, 1997; Pianta et al., 2005). Our ability to positively affect child outcomes depends, in part, on our ability to prepare teachers and provide professional development experiences that promote effective instructional practices among all teachers. Although a great deal is now understood about teachers in early education classrooms, much less is known about preparing these teachers and providing effective professional development (Zaslow & Martinez-Beck, 2005).

The National Center for Research on Early Childhood Education (NCRECE) was established to test the effectiveness of a professional development model that can be used in in-service and preservice professional development settings. The model includes a standardized course which, when provided for in-service teachers, includes consultancy as a follow-up to the course. The goal of this article is to describe a related study that implemented the same standardized NCRECE course in three institutions of higher education teacher preparation programs rather than through in-service professional development. With more than 1,200 institutions of higher education offering some kind of degree program in early childhood education for approximately 36,000 students annually, these teacher preparation programs provide professional development for a significant proportion of the early childhood workforce (Maxwell, Lim, & Early, 2006). There is a need, therefore, to conduct research to better understand different models of preservice professional development. This study focused on preservice teachers in order to add to our knowledge of how a standardized course can be offered across multiple institutions of higher education and the experiences of instructors and students who participate in the course.

Research on Effective Teaching Practices

The content of the course was based on a growing body of research that suggests that certain teacher behaviors are more effective than others in promoting positive outcomes for young children. Effective early childhood teachers exhibit intentional instructional approaches, sensitive and warm interactions, stimulating language environments, and responsive feedback to children within a classroom environment that is flexible and guided by children's interests (Burchinal et al., 2000; Hamre & Pianta, 2007; Hyson & Biggar, 2005). The Classroom Assessment Scoring System (*CLASS*; Pianta, La Paro, & Hamre, 2008) is an observational measure focused specifically on these key classroom processes. The framework used in the *CLASS* defines effective teaching in terms of teachers' emotional support, classroom organization and instructional support. The *CLASS* measure provides specific behavioral

indicators of each dimension within these broad domains (see Appendix A). Children enrolled in classrooms that were rated higher on these domains demonstrate more academic growth, higher levels of social competence and cognitive control, greater gains on measures of vocabulary, and higher levels of engagement in classroom activities (Curby et al., 2009;Howes et al., 2008; Rimm-Kaufman, Curby, Grimm, Nathanson, & Brock, 2009). The *CLASS* assessment serves as a framework for the teacher–child interaction content of the NCRECE course.

Research suggests some areas of language and literacy development are particularly important for later success in learning to read. These include phonological awareness, alphabet knowledge, print awareness, vocabulary/linguistic concepts, narrative, and pragmatics (National Early Literacy Panel, 2008). Unfortunately, previous research has indicated that early childhood teachers often do not use effective strategies for explicitly teaching these early literacy and language skills (Cunningham, Zibulsky, & Callahan, 2009; Hindman & Wasik, 2008;Justice, Mashburn, Hamre, & Pianta, 2008). Even teachers with bachelor's degrees working in state-funded prekindergarten programs and using a curriculum designed to target language and literacy development rarely demonstrated evidence-based teaching strategies such as asking open-ended questions, repeating and extending children's utterances, or implementing explicit and purposeful early literacy instruction (Justice et al.). Therefore, there is a need for an intentional focus within teacher preparation programs on teaching students how best to support the language and literacy development of young children.

Content and Pedagogy of Higher Education

Research such as that described above provides a "roadmap" to guide decisions about the content of teacher preparation programs. Unfortunately, although teacher preparation programs for early childhood housed in institutions of higher education graduate thousands of future teachers each year (Maxwell, Lim, & Early, 2006), there is scant research describing the content or the effectiveness of courses within these programs. Our knowledge of the professional development offered through teacher preparation programs comes primarily from surveys that have collected data primarily on the types of courses offered, rather than content. Results from these studies indicate that certain subjects or content areas are more often addressed within the higher education programs than others. For instance, Maxwell et al. found that 65.3% of the associate degree programs surveyed and 77.4% of the bachelor's programs required students to complete at least one full course in language and literacy instruction. Lobman, Ryan, and Mc Laughlin (2005) found similar results when they examined early childhood education teacher preparation programs in New Jersey, where almost every program included in the study required students to take a full course in early literacy. Teacher–child interactions are, however, less frequently addressed in course requirements. In the Maxwell et al. study, some programs reported that they require students to take courses in content that could be related to teacher–child interactions (such as classroom or behavior management which was required in 64% of associate degree programs and 57% of bachelor programs, and children's social-emotional development, which was required in slightly over half of the associate and bachelor programs). Lobman et al. found

similar results in New Jersey higher education programs. While programs require students to complete courses in various foundational areas of early childhood education (child development, classroom management, early childhood curriculum, developmentally appropriate practice, and other topics), teacher–child interactions are not often the focus of courses, as indicated by the title of the course. A more recent report highlights the lack of intentionally integrated content across courses typically included in ECE programs, such as development courses, methods courses, and courses focused on a specific content area such as mathematics, science or literacy. Additionally, this study suggests that both the content of what is taught as well as the method of delivery are important considerations in the effort toward effective early childhood teacher education (Whitebook, Gomby, Bellm, Sakai, & Kipnis, 2009).

While there is a need to better understand the content offered in higher education courses, there is also a need to systematically study the way course content is delivered. Just as instructional strategies are critical to the outcomes for children in early childhood classroom, the teaching practices used in preservice courses may also be an important component in the effectiveness of individual courses to prepare students to teach in early childhood classrooms.

Reflective practice has been considered a hallmark of teacher education since John Dewey (1933); however, reflection with the assistance of video is a more recent teaching strategy that is showing promise (Sherin & Han, 2004). Reflection provides students the opportunity to describe, inform, confront, and reconstruct experiences (Francis, 1995). Recently, these experiences have been captured and viewed using videos of classroom experiences that students personally were involved in or situations from different classrooms that represent a range of classroom situations and experiences (Bayat, 2010; Hin Wai Young, Wong, Chong, Sum Hui, & Hodson, 2007;Rosaen, Lundeberg, Cooper, Fritzen, & Terpstra 2008). A recent review of the use of video in teacher education suggests that video may create new and different methods to impart information in teacher education and provide students with opportunities to observe a range of classrooms and a variety of teaching strategies at times when they are not actively teaching (Sherin & Han; Wang & Hartley, 2003). The use of video for reflection may allow students to focus on instruction rather than other salient classroom issues such as behavior management. It also gives them the opportunity to view exemplary teaching (Hin Wai Young et al.; Rosaen et al.). The use of video technology as a tool to both expose students to examples of effective teaching practices and promote their reflection on various teaching strategies may hold promise for teacher education; but, understanding students' use of this teaching strategy and their reaction to a course based on the use of video with reflection has only recently begun to be addressed in the literature.

Purpose of the Study

The present study was designed to document how a standardized early childhood education course was implemented across different institutions of higher education and to gain insight from instructors' and students' perceptions of the course (i.e., what they thought about the delivery of

the course as well as course content). Given the decentralized and fragmented nature of the early childhood teacher preparation programs that prepare our nation's early educators, the idea of offering a common course across different institutions is new and untested. The idea of "grounding" a teacher preparation course in a framework based on an observational assessment tool and video reflection is also a different approach. We wanted to document the process of implementing the course and see whether students learned the content of the course as well as assess any changes in their attitudes about children's learning that might be associated with the content and activities included in the course.

Method

Description of the Course

The course tested in this research study was developed by the National Center for Research on Early Childhood Education (NCRECE). Titled *Support of Language and Literacy Development in Preschool Classrooms through Effective Teacher-Child Interactions and Relationships*, the course was developed by NCRECE with a focus on evidence-based practices related to teacher–child interactions and teaching strategies for language and literacy development. The target audience was both preservice and in-service students. In this study, NCRECE offered the course through 2-year and 4-year institutions of higher education for both traditional preservice students and in-service students enrolled in a teacher education program. In the following section we provide information about how the course was developed, the content of the course, the supports provided for instructors of the course, and the sample included in the study.

Course development

The NCRECE course was developed based on findings from previous research on effective teacher–child interactions, and was reviewed and piloted extensively in preservice programs before it was implemented. The initial draft content for the course was written by NCRECE staff and then piloted at two universities in the fall semester of 2006. The course was then revised and submitted to a panel of expert reviewers from 2-year and 4-year institutions of higher education. The content and format of the course was revised based on recommendations from the review panel, subsequently piloted at two 2-year and two additional 4-year institutions, revised once again, and piloted a third and final time at one additional 4-year and two additional 2-year institutes of higher education. In each of these pilots, NCRECE staff met throughout the semester by phone with instructors who were piloting the course to provide technical assistance and collect feedback and suggestions for improvements to the course. These suggestions were used to revise the content and format of the course, and the final version of the course was completed in summer 2007.

Course content

A primary goal of the NCRECE course was to increase students' knowledge of effective teaching strategies using the framework provided by the *CLASS*. To achieve this goal, a sizeable portion of the course content was focused on students' understanding of the behavioral indicators comprising the *CLASS,* and why these teaching strategies are important for children's learning and development. Additionally, students' ability to observe and identify these *CLASS*behavioral indicators was also a focus. Intentional teaching (having a specific goal and plan for interactions with children) was another key feature in the course underscored within the framework of the *CLASS* and the focus on teacher–child interactions. The course provided the students with opportunities to learn about and implement specific teaching strategies to foster positive teacher–child interactions. One example is a teaching technique called "Banking Time," which is a regularly scheduled play session with an individual child during which the teacher allows the child to direct the session and the teacher implements specific interactions to reinforce a positive relationship between the teacher and the child (Pianta & Hamre, 2001). Students also learned about intentionality in teaching through planning and implementing lessons. These lessons used children's interests and points of view, and involved the use of multiple learning modalities and interactions that encourage critical thinking. Students also implemented behavior management strategies that focus on proactive teaching strategies that reinforce positive behaviors.

The course also presented information on children's language and literacy development, as well as instructional strategies to promote early language and literacy development in 4-year-old children. For instance, students learned techniques to expand children's vocabulary and to encourage children to express themselves verbally. Students also learned instructional strategies for teaching early literacy skills, such as dialogic reading techniques and techniques to foster children's phonological awareness. Taken together, the course addressed a number of teaching strategies designed to foster children's language and literacy development and, at the same time, promote intentional and positive teacher–child interactions.

The course contained 13 units of instruction and a final review unit. Each was designed to be completed within a one-week period, either in a 2.5 hour class once a week or 1.5 hour class twice a week. The content of the first 10 units focused on the dimensions of effective teaching included in the *CLASS* framework: Positive Climate, Negative Climate, Teacher Sensitivity, Regard for Student Perspectives, Behavior Management, Productivity, Instructional Learning Formats, Concept Development, Quality of Feedback, and Language Modeling. The final units of the course focused more specifically on teaching strategies that promote children's language and literacy development.

Within each unit, students learned both the specific teaching practices and the research supporting the importance of these teaching practices, and viewed video examples of teachers implementing the teaching practice/interaction being discussed in the unit during class. The videos were authentic footage taped by prekindergarten teachers themselves using video cameras and lapel microphones to capture their conversations with children. A large proportion of the videos showed teachers leading large- or small-group activities, and some depicted center

activities and transitions. Video clips ranging from 30 seconds to 5 minutes were selected for the course to illustrate specific teaching practices. During each unit, videos that show a teacher demonstrating behaviors consistent with a specific *CLASS* dimension were shown and the instructor led a discussion of what students saw the teacher do that illustrated the *CLASS* dimension and how children's language and literacy development were supported through each type of teacher–child interaction.

Students also completed several different types of assignments and homework over the course of the semester, including guided reading assignments and analyses of videos of teacher–child interactions focused on the *CLASS* dimension discussed in the previous class session. These homework videos were accessed via a password protected NCRECE website designed specifically for this course. Students were required to observe the videotaped teachers and analyze the teacher's behaviors based on the specific *CLASS* dimension being studied in the course that week. Students completed two larger assignments during the semester. For one assignment, students planned a lesson that addressed an area of children's language and literacy development, videoed themselves implementing the lesson, and then analyzed their own teacher–child interactions using *CLASS* dimensions. Students also completed an assignment in which they implemented three Banking Time (Pianta & Hamre 2001) sessions with a child and completed a written assignment to reflect on their experiences. Finally, the course included a midterm and a final examination, each of which was completed as a take-home examination.

Supports for Instructors

Steps were taken to maximize the likelihood that the instructors would offer the course effectively and consistently across institutions. First, a consistent process was established for delivering content. Instructors received a notebook that contained background information, PowerPoint slides, scripted discussion points, and a complete description of in-class activities. Scripted PowerPoints were provided to address course content, and instructors were asked to follow the PowerPoint slides and script as written. The notebook also included instructions and answers for each of the homework assignments, the course project, and the examinations (a midterm and a final exam). Instructors also received a second notebook that provided copies of all student readings, in-class handouts, and assignments, and a copy of the textbook used in the course (*Designing Early Literacy Programs: Strategies for at-risk Preschool and Kindergarten Children* by L. M. McGee and D. J. Richgels [2003]). CDs with electronic copies of all readings, PowerPoints, assignments, and all videos used within the course were also provided to instructors.

Each instructor participated in two types of training prior to implementing the course. First, the instructor participated in *CLASS* training to learn about the *CLASS* instrument and to demonstrate reliability on the instrument. Second, they participated in a 2-day training on the course itself. Both of these trainings were completed prior to the start of the semester when the course was offered.

Instructors also participated in a weekly conference call with one of the Principle Investigators to debrief from the unit taught most recently, and to plan for the next unit. The Principle Investigator reviewed the content and any in-class exercises in the unit, and previewed the homework and/or other course assignments that would be discussed during the upcoming unit. Because two of the sites offered the course during the same semester, the debriefing/support call was held jointly with two instructors. The third site implemented the course during a different semester so the support calls were held with only one instructor.

Higher Education Programs

Three higher education institutions participated in the current study. The teacher preparation programs were recruited from contacts of the larger NCRECE study and personal contacts of personnel involved in the study. Table 1 provides an overview of each program. Program A is a large community college early childhood teacher preparation program located in the southeastern United States, with 350–400 full- and part-time early childhood education students enrolled and 8 faculty members. Program B is also a 2-year institution located in the southeastern region of the United States, but is considerably smaller. The early childhood program at this institution currently has one early childhood faculty member and has approximately 100 students enrolled per semester. Students in both of the community college programs typically are part-time students; most are employed in early education settings or in other positions while taking classes. Program C is a 4-year bachelor's degree program located in the Southeast. This program offers a Bachelor of Science in early childhood education degree within the College of Education. The majority of students enrolled in this program are full-time students who are not currently employed in early childhood settings. All three programs require students to take courses in language and literacy, and none of the programs has a course targeted specifically to address teacher–child interactions.

Table 1 Characteristics of Sites and Participants

Site characteristics	Total	Site A	Site B	Site C
Type of program	2 2-year	2-year	2-year	4-year
	1 4-year			
Number of students in program	258	375	100	300
Number of full-time faculty	4.3	8	1	4
Course on teacher–child interactions	0 yes	No	No	No
Course on language and literacy	3 yes	Yes	Yes	Yes

Student participant characteristics				
Number in sample	16.3	14	15	20
Mean age	27.7	32.6	31.5	21.6
% Caucasian	69	64	43	90
Mean years experience with children	3.9	5.2	5.0	2.1
% Teaching while in school	55	100	50	15
% Familiar with the *CLASS*	22	0	40	23
Mean rating for use of the Web	3.7	3.5	3.5	4.0
Mean rating for comfort with the Web	3.6	3.7	3.5	3.7

Sample

In this section we provide descriptive data related to recruitment and the characteristics of the sample. We describe the characteristics of the total sample (instructors and students), and note the distinctive characteristics of students enrolled in the individual programs.

Instructors

At each of the three institutions, one instructor taught the course. Of the three instructors, two were Caucasian and one was African American. Two instructors had completed a master's degree and one held a doctorate degree. All three reported having completed their degree in early childhood education or a related field. The mean number of years the instructors had been teaching in a higher education setting was 6.33 ($SD = 2.08$, range = 4–8) years. All three of the instructors also had prior classroom experience teaching young children. Their experience teaching preschool-age children ranged from 2 to 12 years. Two instructors also had experience teaching school-age children in a school setting. One instructor taught Kindergarten, second, and third grade for 3 years (and also served as a guidance counselor for 4- and 5-year-olds for 5 years); and one instructor taught first, second, and third grade prior to becoming a college instructor. All three instructors also had previous experience teaching language and literacy courses in higher education settings. One instructor had previously taught "Primary Language and Literacy," a course that covered Kindergarten through third grade. The second instructor had previously taught a course titled "Language Arts and Young Children," which addressed language and literacy development in children from birth through 8 years. The third instructor previously taught a language course that covered birth through 4-year-olds and included some content on early literacy development. Although each of the instructors was aware of

the *CLASS* instrument, none had in-depth knowledge of the instrument until the training for the course.

Students

Students were not specifically recruited to participate in the study. Instead, the course was listed under the name of the course for which it would substitute and students used the regular course enrollment process at their respective institutions to enroll. In the current study, the course was offered to students for three semester hours of credit at each participating institution. At one institution, an alternate section of the course was offered and was taught the way it is typically taught. At the first class meeting, students were informed about the study and invited to participate in the research component of the course. A total of 49 students agreed to participate in the study. Fourteen of the participants were enrolled in Program A, 15 in Program B, and 20 in Program C. Table 1 provides data on the characteristics of the students. Each of the participants in the study was female. The mean age of participants was 27.7 years ($SD = 10.3$), with a range from 20 years to 60 years of age. Students from the 4-year program (Program C) were considerably younger than students from the community college programs. Across the three programs, the ethnic background of most (69.4%) of the participants was Caucasian. The mean percentage of African American participants was 26.5%. Other ethnic groups represented among participants included Native American, Vietnamese, Hispanic, Korean, Jamaican, and Italian, The ethnic composition of the participants varied by site. The majority of participants in Program A were African American (64%), while the majority of participants in Program B (67%) and Program C (90%) were Caucasian.

All of the participants were majoring in early childhood education. Participating students indicated that they had completed a mean of 63.5 credit hours of college coursework. Students had a range of experience working with infants and toddlers ($M = 2.71$ years, $SD = 4.08$, range = 0–19 years) and preschoolers ($M = 3.90$ years, $SD = 4.92$, range = 0–19 years), but relatively little experience working with kindergarten children ($M = .83$ years, $SD = 1.58$, range = 0–7 years). Exactly half of the participants were working in early childhood programs while taking classes. Participants from Programs A and B reported considerably more years of experience. Program C also had a lower percentage of students who were currently employed in an early childhood program (15%) than students from Program A (100%) and B (50%).

Approximately 22% of participants reported that they were familiar with the *CLASS* instrument prior to taking the NCRECE course. No participants in Program A reported having any prior knowledge of the *CLASS*. In Program B, approximately 40% of participants were familiar with the *CLASS* and in Program C, approximately 23% of participants were familiar with the *CLASS* before their exposure to it in the course.

Because students were expected to access videos on the World Wide Web as part of their course assignments, the research team was interested in students' prior experience using computers.

Participants were asked to rate the extent to which they use technology and their comfort level in using technology. The majority (79.6%) of students indicated they use the World Wide Web at least once a day and were "very comfortable" (71.4%) using the World Wide Web. Students from the 4-year university reported they use the World Wide Web more often than students from either of the community college programs, but students' self-report of their level of comfort using the World Wide Web was comparable across the three programs.

Data Collection Procedures

The Principle Investigators documented their own experiences and observations throughout the process of introducing the course to the respective institutions through extensive field notes. Handwritten notes from phone conversations and meetings were recorded by one Investigator and then discussed/reviewed by a second Investigator to check for accuracy, and to confirm and expand on the information recorded regarding meetings with instructors and administrators. These notes served as descriptive data to document the decision-making process related to how the course would be offered at each of the respective institutions.

Instructors completed a pre- and postsurvey. The precourse survey was distributed to instructors at the beginning of the semester. Postcourse surveys were mailed to the instructors at the end of the course and returned to the research team via the mail. Student participants completed a packet that consisted of the pre-post measures described below at the beginning and end of the semester. For the precourse measures, the packet was distributed at the first class meeting and participants completed the packet within the first class session or students were allowed to take the packet home and return it to the instructor the following week. The midterm examination was administered during the ninth class session as a "take home" exam. As part of the exam, students received a log-in name and password so they could access the videos that were included on the exam. The final exam was distributed during the final (14th class session) and returned one week later. Student received the postcourse packet of measures during the final class session and returned them to their instructors. Students were compensated for their participation in the research study upon receipt of their completed packets of measures.

Measures

Student measures

Students completed a demographic questionnaire, which included questions about teaching experience, race, and ethnicity, comfort with technology, and previous experience with the *CLASS* instrument. A second survey measure, titled *Your Literacy and Language Beliefs, Knowledge, and Practices*, included multiple assessment elements focused on knowledge of components of literacy and language. In addition to the measures of language and literacy beliefs and knowledge, the postcourse packet also included a survey about students' perception of what they learned from the course and their attitudes toward the course. These measures are described below.

Two rating scales were used to measure students' beliefs and attitudes. Students rated child skills as to their importance for entering kindergarten using the *Beliefs about Importance of Specific Skills-MTP L/L Beliefs*(Burgess, Lundgren, Lloyd, & Pianta, 2001). Examples of skills included on this questionnaire are "Identify all the letters of the alphabet," "Initiate a conversation with an adult or a peer," and "Retell a fictional story using newly learned vocabulary." Students rated the importance of these items from 1 (*essential*) to 4 (*not important*). Some responses were reverse coded for this study so that higher scores indicated that participants felt the skill is more important, and the mean rating across the 12 items was used in analyses. Burgess et al. report that results on this scale are internally consistent with self-reported language and literacy practices. Cronbach's alphas from the current study were .853 for the pretest administration of the measure and .879 for the posttest.

The *Beliefs About Intentional Teaching* (Hamre & Downer, 2007) measure is an 11-item scale that assesses students' beliefs about the importance of intentional interactions for children's learning. Students were asked to rate their agreement with statements such as "Preschool children are too young to benefit from explicit instruction in early literacy" and "Whole group instruction is inappropriate for preschool children." Students rated the items from 1 (Strongly Disagree) to 5 (Strongly Agree). Nine items were reverse coded so that higher scores reflect more positive beliefs regarding intentional teaching. The mean rating across the items is reported for this study. Cronbach alphas for the measure in the current study were .804 for the pretest and .714 for the posttest administration.

Two measures assessed students' knowledge related to teaching practices. The *Knowledge About Literacy and Language*measure (Hamre & Justice, 2007) asked students to categorize children's language and literacy skills (such as identifying the front, back, and title of a book; recognizing letters in their name, and identifying the first sound in a spoken word) into one of six domains related to language and literacy: phonological awareness, vocabulary and linguistic concepts, narrative skills, print concepts, pragmatics and social language, and alphabet knowledge. The measure consisted of two items for each of the six domains. A total score was computed for the percent of correct responses across the 12 items.

Students also completed a set of 14 multiple choice scenarios based on knowledge of teacher–child interactions, the*Teachers' Knowledge of Effective Teacher-Child Interactions* measure (LoCasale-Crouch & Jacobson, 2007). Students read a brief scenario about preschool classroom teaching and activities and chose a teacher's response from a set of four choices. Students were asked to choose the best response. Correct answers are based on effective interactions as defined by high-quality interactions using the *CLASS* framework (Hamre & Pianta, 2007; Pianta et al., 2008). The total mean percent correct is reported.

As part of the posttest survey packet, students completed a survey measure to rate their perceptions of the course. Students rated the extent to which they agreed with each of 35 statements regarding the course on a 5-point scale (ranging from 1 = "*strongly disagree*" to 5 =

"*strongly agree*"). The mean overall rating was calculated for all 35 items. The Cronbach alpha for the total scale was .886 in the current study. Items on the scale addressed three topics: students' perceptions of the effectiveness of the instructor, their attitudes toward general features of the course, and their perceptions of the effect the course had on their own knowledge and teaching practices. In addition to the total mean rating, mean ratings for each of these subscales were computed and used in the analyses. Cronbach alphas for each of the subscales were as follows: instructor .761, features of the course .800, and effect on self .872. The postcourse survey also included three open-ended questions which asked students to comment on how they felt the course had/would change the way they teach, the most beneficial aspects of the course, and the least beneficial aspects of the course.

Midterm and final exams completed during the course were also collected as data. Both exams included matching, multiple choice, and short answer questions. They also included fill-in-the-blank type questions that required students to apply the content they had learned. Both exams also included a video assessment in which students were asked to watch two videos, each of a different teacher interacting with children, and identify specific behavioral indicators within a *CLASS* dimension discussed in the course. The midterm primarily assessed students' knowledge of the *CLASS* dimensions and behavior indicators. The final exam assessed students' knowledge of the language and literacy content covered in the second half of the course.

Instructor measures

The instructors completed a precourse demographic survey. Instructors also completed a postcourse questionnaire packet related to their teaching of the course. The postcourse survey asked instructors to rate the extent to which they agreed with a series of statements regarding the content of the course. Instructors also were asked to rate items designed to determine if they implemented the course as it was designed and their perceptions on how well students learned the content of the course. Finally, instructors commented on strengths of the course and areas that were challenging for them in response to open-ended questions.

Data Analyses

The purpose of this study was to describe how the NCRECE course was introduced in different Institutions of higher education and to describe participant responses to the course. To describe the decision-making process for adopting the course within each institution, the Principle Investigators reviewed their field notes from contacts with each institution, looking for common themes and topics that emerged across the institutions. Specific decisions regarding how the course would be implemented and perceived barriers to offering the course were identified and coded within the notes from each institution. These data were then compared across institutions to note similarities and differences. Results from these analyses are presented in the form of a descriptive narrative. To document instructors' perspectives on the content and format of the course as well as their experiences in teaching the course, instructors' responses to questions on

the postcourse survey were examined to discern the strengths and weaknesses of teaching the course that each reported. Instructor ratings on the quantitative items from the survey were compared with their responses to open-ended questions to check for consistency in their responses and to provide further information to aid in interpreting the results from their ratings on the quantitative items.

Student responses on the pre- and postcourse surveys were also examined. T-tests were used to determine if student ratings on the measures of knowledge and the beliefs measures were significantly different on the pretest compared with the posttest. Descriptive statistics are presented for student ratings of various features of the course on the postcourse survey. Open-ended comments on the student survey were read carefully and then coded according to common themes identified as goals and objectives for the course (beliefs regarding intentional teaching, knowledge of intentional teaching, knowledge of the *CLASS*) and themes related to the implementation of the course (perceived effects of the course, effective components of the course, and ineffective components of the course). Once predominant themes were identified within the open-ended comments, quotes illustrating each theme were selected and used to guide the interpretation of the results from the open-ended questions.

Preliminary analyses indicated that there were no significant differences between the three sites in instructor or student responses to the quantitative measures. Student characteristics such as prior knowledge of the *CLASS* instrument or previous experience working with children were also not related to student responses on the measures. Therefore, the data were collapsed across the three sites and summary data are presented for the full group of students. An early draft of the manuscript describing all of the quantitative and qualitative results was provided to each of the instructors to check accuracy of the descriptions included in the methods section, the validity of the findings and the authors' interpretation of the results.

Results

Results describing the process of implementing a common standardized course across three institutions of higher education, instructors and students' perceptions of the course, and student learning within the course are presented in this section. Results provide insights into issues that are inherent in efforts to implement a common course in institutions of higher education and speak to possible benefits of offering this type of course to students.

Implementing the Course at the Institution Level

In this section, we describe steps taken in order to offer the course, and issues that arose during the process of planning and implementing the course across three different institutions. Factors considered in the implementation process were the teacher licensing requirements for each state, curriculum sequence within each program, and timelines for developing and offering a new course at each institution. To plan for implementation, project staff first met with each course instructor and, in two cases, with department heads/administrative faculty to discuss how the

course would be offered at individual institutions. One of the first steps in implementing the course was to decide the course number/name under which the NCRECE course could be offered. The course needed to "fit" within the program of study offered at the institution so that it would fulfill a program requirement, coordinate with the students' programs of study, and meet state licensing requirements for students if the institution's program of study resulted in a teaching license. While the course could be offered as an elective, both project staff and faculty at the institutions realized that students would be far less likely to enroll in a course that did not fulfill a requirement for their program of study.

In deciding the course name and number, faculty at each institution and project staff reviewed the content of the NCRECE course and the content of current courses offered at the institution, then decided which of the institution's current required courses was most similar to the proposed course content. Instructors noted that the NCRECE course content was not an exact match for any course taught at their institution, although they ultimately decided that the content could be substituted for a course currently offered (and students did receive credit for a course within their degree program). The challenge of matching the course content with courses currently offered at each institution seemed to center on the idea of combining language and literacy content with content that addressed teacher–child interactions. One of the institutions had a series of reading courses that focused specifically on reading methods; other institutions also had specific methods courses that included teaching strategies but not teacher–child interactions as defined in the NCRECE course. Given program requirements and differences in course content, for each institution steps were taken to ensure that students enrolled in the NCRECE course would also receive content typically covered in the required course that was not addressed in the NCRECE course. This additional material was included for students in different ways. At one institution, a required assignment was added to the NCRECE course; and in two institutions, the faculty decided to cover additional required content in a separate course students were also required to take.

Instructors' Perception of the Course

Overall instructors were very positive about the course content. The three instructors agreed or strongly agreed that the content aligned with their beliefs about teaching ($x = 4.67$ on a 5-point scale) and included relevant information ($x = 4.67$). Instructors also agreed that students would be able to apply course content ($x = 4.00$). Instructors reported that the Banking Time activity and using video clips to show effective teaching strategies were the most useful to the students.

Instructors reported implementing the course as intended, using the PowerPoint slides and following the lessons outlined in the notebooks. In response to the questions, "I made changes to material and presentation provided by NCRECE" all instructors disagreed with the statement ($x = 2$). They did, however, point out some disadvantages to using a course that was developed by someone else and intended to be implemented in a predetermined manner. The extensive use of PowerPoint slides was mentioned by all instructors. At least one instructor was not

accustomed to using PowerPoint slides and so the mode for delivering the course did not fit her typical teaching style. On the postcourse survey she commented, "This course depended more on PowerPoint presentations than I typically use when teaching." While the other two instructors were more accustomed to using PowerPoint presentations, they indicated that they sometimes felt they were not thoroughly familiar with the PowerPoints because they had not developed them. These instructors also indicated that because they had to implement the course the way it was designed they sometimes felt limited in their abilities to address areas of particular interest or needs of the students. One instructor commented, "I do not use a lot of PowerPoints/or present that much material at a time. My teaching is usually much more interactive/application—not so much direct teaching."

Instructors also reported some concerns with student understanding of the material, only somewhat agreeing with the statement, "The students understood the material presented" ($x = 3$) and "students really understood the course content" ($x = 3$). The instructors commented on the survey that they felt there was too much information and students did not have enough time to process all the material. One instructor suggested that the materials be spread across two semesters and include a practicum to help students integrate the material. One instructor commented, "The course was loaded with information. There should be more time for reflections and more activities."

Student Feedback on Course

Data were collected from students to provide feedback on the overall design and delivery of the course, the content of the course, and their own learning during the course. In this section, we present results from student surveys and from measures of students' learning and attitudes that describe their experience with the course. The results are strictly descriptive because there was no control or comparison group for the study. The findings, therefore, illustrate the results associated with the course but do not indicate that the course caused changes in student knowledge or attitudes because we cannot attribute causality with this one group pre-post-test research design.

Student perceptions of the course design and delivery

Relative to the overall course design, results from the end of course surveys indicated that students held positive attitudes toward the course. The mean overall rating of the course was 4.31 on the 5-point rating scale ($SD = .30$, range = 3.77 to 4.86) and students rated items related to the general format and content of the course relatively high (mean = 4.19, $SD = .36$, range = 3.27 to 4.87). Students had both positive and less positive comments on the course. Some students felt that the use of a standardized format and PowerPoint slides in each lesson was too repetitive, although a few students highlighted the PowerPoint slides as beneficial to the course. One comment from a student illustrates this viewpoint. The student wrote, "I think that other modalities, other than a PowerPoint [would have been beneficial]. More small group work and

interesting/creative activities should have been used." Students also indicated that too much material was covered during the course and commented that the amount of information covered in the NCRECE course was equivalent to what would typically be covered in two separate courses. For instance, one student wrote, "I believe the class should have been broken into two classes. At times there was way too much information to swallow."

Also, a large number of students felt that there were too many videos and that the videos were sometimes hard to see (particularly the videos used with the homework); however, some students indicated that the videos were particularly beneficial in increasing their knowledge of effective teaching practices. The following quote from the student comments illustrates this view: "The videos made everything much more clear." Student reports concerning usefulness of assignments were mixed. Some students indicated that the lesson plan assignment and Banking Time assignments were particularly helpful, as one student noted: "The lesson plan assignment [was helpful] because I got to practice what I learned all semester." Others, however, noted that they did not find the Banking Time assignment helpful. A few student comments indicated that the readings were least beneficial because sometimes they were not discussed during the class sessions.

In addition to comments about course content, students rated the instructor of the course. Student ratings of the instructor of the course were extremely positive. The mean rating for items related to the instructor was 4.63 (*SD* = .32) out of 5, and every student rated their instructor a 4 or higher on each of the items on this subscale. Interestingly, in the open-ended responses, only a few students commented about the instructor being a beneficial component of the course.

Overall, many students reported finding everything included in the course helpful and almost all appeared to think the instructor of the course was effective. However, many indicated that there were aspects of the way the course was designed and delivered that they felt were less effective.

Student perspectives on course content and their own learning

The course content included a focus on intentional teaching, teacher–child interactions, and language and literacy. Students' comments were generally positive about the course content, their beliefs and attitudes on these topics changed in a positive direction, and they showed learning within the course (see Table 2). Students' beliefs about intentional teaching and important skills for young children changed from the beginning to the end of the course. Whereas the mean pretest rating on the *Beliefs About the Importance of Skills Scale* was 2.86 (*SD* = .53, range = 1.00 to 4.00), at the end of the semester their mean rating was 3.35 (*SD* = .47, range = 2.33 to 4.00). Scores on the *Beliefs About Intentional Teaching Scale* were also significantly higher at the end of the semester, indicating that students rated the importance of intentional teaching as more important after the course. Students' mean rating at the beginning of the semester was 3.41 (*SD* = .52, range = 2.40 to 4.60), compared with a mean rating of 3.77 (*SD* = .63, range = 2.30 to 5.00) at the end of the semester. Although we must exercise caution in interpreting these results

because of limitations in the research design, it does appear that students' demonstrated more favorable attitudes toward intentional teaching at the end of the course.

Table 2 Student Outcomes on Pre-Post Measures

Measure	N	Pretest mean (*SD*)	Posttest mean (*SD*)	*t*	Df	*p*
Beliefs about importance of skills	49	2.86(.53)	3.35(.47)	6.32	48	.000
Beliefs about intentional teaching	43	3.41(.52)	3.77(.63)	4.53	42	.000
Knowledge about language and literature*	49	60(20)	84(15)	7.96	48	.000
Knowledge of effective teacher–child interactions*	49	62(15)	76(15)	7.05	48	.000

*Percent correct.

When students were asked specifically to comment on how what they learned in the course would change their teaching style, the vast majority of comments indicated that students felt the course had a positive impact on their teaching practices. The most common response to this question indicated that the students had gained an increased recognition of the importance of intentional teaching. Exactly half of the comments referenced new knowledge related to how to implement intentional teaching practices or an increased understanding of the importance of intentional teaching. The following two comments are illustrative of the responses that fell into this category: "I will assess myself now after every time I teach. I will also plan intentional interaction with the students. I really liked the way the class put these dimensions up, so we can assess ourselves." Another student commented, "I will be more intentional with the way I teach. Before it was more of a natural approach." However, not all students reported an intent to use the course information in their teaching. One student commented, "I honestly do not feel I will use the class approach because it changes how I am use to teacher [*sic*] and the way I teach is effective." The other commented, "It won't change the way I teach because this is my first time in the program but I know the basics and will follow them."

More specifically, the *CLASS* framework of teacher–child interactions provided for the course appeared to provide students with a different perspective from which to view their teaching. Students felt it was helpful to have a defined framework to use when evaluating teaching practices and reported that the *CLASS* manual that was used as a textbook within the course was a useful resource. Also, a large number of the students' comments suggested that they had gained a better understanding of the importance of teacher–child interactions and relationships. For instance, one student commented, "I will definitely be more aware of my teacher–student interactions from now on, I don't think I really realized how important they were until now."

And, students' learning reflected growth in this area (see Table 2).Their pretest mean percent correct was 62% (*SD* = 15%, range = 29% to 93%), compared with 76% at the end of the semester (*SD* = 15%, range = 29% to 100% correct) on the *Knowledge of Effective Teacher-Child Interactions* scale. However, the specific use of the dimensions from the *CLASS* seemed to be more challenging for students. Students rated their confidence in their understanding of the *CLASS* dimensions relatively low in their assessment of the course (*x* = 3.69).

Many students indicated that they appreciated the language and literacy content they learned through the course, and students' knowledge about both language and literacy and intentional teaching increased from the beginning to the end of the course. On the *Knowledge about Language and Literacy* scale (see Table 2), students' mean percent correct at the beginning of the semester was 60% (*SD* = 20%, range = 0% to 92%), and at the end of the semester the mean was 84% correct (*SD* = 15%, range = 50% to 100%). Results from the midterm and final examination for the course indicated that the material may have been challenging, but that students were moderately successful in mastering the content of the course. On the midterm, the mean percentage of correct responses was 62% (*SD* = .13, range = .32–.87). Students demonstrated higher scores on the final examination, where the mean percentage of correct responses was 79% (*SD* = .13, range = .45–.97). The research design for the study means that we must interpret these results with extreme caution and cannot attribute the noted changes to the course; but the data do seem to indicate that students had more knowledge of course content after completing the course than prior to taking the course.

Discussion

The purpose of the current study was to describe the process of implementing a standardized course across three early childhood teacher preparation programs. In this section we discuss the significance of the study, instructor and student perceptions of the course, and changes in students' knowledge and attitudes over the course of the semester. Implications for future research are also highlighted.

Significance of the Study

While there is a growing body of research to examine the effectiveness of various models of in-service professional development, we know relatively little about the types of professional development experiences (i.e., courses) offered in teacher preparation programs and subsequently the effect teacher preparation programs have on students' knowledge and beliefs (Hyson, Tomlinson, & Morris, 2009). The need for research that examines teacher education is magnified by recent studies which document the tremendous variability that exists across institutions of higher education (Maxwell et al., 2006) and studies that indicate that merely having a higher education degree in early childhood does not necessarily translate to better outcomes for children (Early et al., 2006; Early et al., 2007). If early education programs are going to achieve high-quality programming on a large scale, then the mechanisms of training

teachers must be examined and tested not only at the in-service level, but at the preservice level as well (Birman, Desimone, Porter, & Garet, 2000; Borko, 2004; Cochran-Smith & Zeichner, 2005;Whitebook, Bellm, Lee, & Sakai, 2005). The current study addresses the need for additional research on the learning of students enrolled in higher education teacher preparation programs.

In addition to addressing the general need for further research, this study is unique in that it reports results from a teacher preparation intervention delivered across three institutions of higher education. Previous research conducted in higher education settings has been limited to examining specific components of a program (e.g., students' practica experiences) and generally focused on one institution/program. The current study collected data across three diverse institutions of higher education and examined features related to the implementation of a full course rather than components of a course or specific elements of a teacher preparation program.

Finally, the current study is significant because it is part of NCRECE's larger effort to investigate the use of a conceptual model of teacher effectiveness as the foundation for efforts to help teachers learn strategies to promote children's language and literacy skills. The NCRECE course combined research-based information regarding effective teacher–child interactions using the *CLASS* with research-based information on children's language and literacy development. Therefore, results from this study are noteworthy for several reasons.

Implementation and Delivery of the Course

None of the programs participating in the study had a similar course for which the NCRECE course could directly substitute, and so the NCRECE course was substituted for a language and literacy course in each of the three institutions. This lack of "fit" within teacher preparation programs presented a significant challenge during the process of recruiting sites. Several potential sites were identified and not included in the study because they did not have a course that was similar enough for students to receive credit for the NCRECE course. It appears that teacher preparation programs most commonly offer separate courses to address language/literacy and teacher–child interactions. Consideration should be given to the potential value of integrating this content to teach preservice teachers how to promote children's language and literacy development through effective teacher–child interactions.

Instructors offered their perspective on the content and delivery of the course. Overall instructors reported that the content was important information for students and they commented positively on the organization of the course and the materials. However, there were challenges in matching the course to instructors' teaching style. The instructors were asked to implement a prepackaged course and some struggled with the format of the course, particularly the extensive use of PowerPoint slides. It is fair to assume that if the instructors had additional opportunities to teach the course they may become more comfortable with materials and format of the course; but

designing a course that can be offered systematically across multiple institutions and, at the same time, provide some flexibility for individual instructors remains a challenge.

The amount and "level" of material covered in the course is another factor in the attempt to offer a common course across multiple institutions. Instructor and student comments regarding the amount of material included in the course suggest that perhaps the course covered more material than is typical within one course at their respective institutions. While the information included within the course was deemed valuable and helpful, participants indicated that students may not have had sufficient time to process what they were learning. This seems to be yet another consideration for any effort to offer a standardized course across multiple institutions, particularly if the course is intended to be offered in both 2-year and 4-year institutions. If the amount of material covered in the course is greater than what students and instructors are accustomed to, they may feel that the course is too demanding and fail to understand critical components in the course.

Finally, the use of videotaped teacher–child interactions to promote students' reflection on the course content seems to be a promising strategy within teacher preparation programs (Hin Wai Young et al., 2007; Sherin & Han, 2004;Wang & Harltey, 2003). Instructors and students both indicated that it was helpful to include videos to reinforce students' understanding of intentional teaching practices and their knowledge of the *CLASS* instrument. Responses from students, however, indicated that perhaps using too many videos can detract from student learning because the videos begin to feel repetitive. The quality of the videos is also important. NCRECE choose to use teacher-developed video rather than professionally produced video in order to provide authentic examples of teacher–child interactions in classrooms. The quality of the sound and picture was, therefore, variable across the videos. Student responses to the end-of-course evaluations indicated that sometimes they were unable to clearly hear and/or see what was happening in the video and that this detracted from their ability to reflect on the teacher's practices. While video can be used effectively to reinforce course content and promote student reflection, course designers must be careful to balance the amount of video with other teaching strategies and to ensure that the quality of the video is high enough for viewers to see and hear what is happening in the video.

Student Perceptions

Data from student participants indicate that participants felt positively about the course overall. Students indicated positive attitudes toward the course in general and the effect the course had on their own knowledge and teaching practices. Students also had positive views regarding the instructors. The instructors participating in this study possessed many characteristics that contributed to the implementation and delivery of the course. They had to be knowledgeable of content, willing to implement the course as intended, and effective teachers to know how to guide students in a manner that is consistent with the design of the course but also addresses individual students' needs and learning.

Although the focus of the project was on the implementation of a common course, other goals of the NCRECE course were to increase students' knowledge of effective teacher–child interactions and to influence their beliefs and knowledge regarding the importance of intentional learning opportunities that promote children's language and literacy development. Data from students' scores on pre-post-test measures indicate that the course was associated with changes in students' early language and literacy knowledge and beliefs, although we cannot attribute the noted changes to the course because there was no control or comparison group. Therefore, we must interpret these descriptive results with extreme caution. These findings, however, are similar to the larger NCRECE study focused on in-service teachers using the same course in a randomized control trial (Hamre et al., under review), suggesting that the course is associated with positive changes in participants' attitudes and knowledge. This study compliments the larger NCRECE study by offering the course as part of each institution's regular program, while the main study has offered the material as a professional development opportunity for in-service teachers.

Although the data from the pre-post-test measures provide some evidence that the course was associated with changes in students' beliefs and knowledge related to early literacy and intentional teaching practices, results from the measures collected as the course was implemented show that there was variation in the extent to which students learned the specific content of the course. Students appeared to learn a great deal about language and literacy; their percent correct in this area were 24% higher after completing the course. However, although students made significant gains in their knowledge of teacher–child interactions, the postcourse percentage of correct responses remained under 80%, with the range indicating that some students were only getting about a quarter of the questions correct. There was also a range (from failing to almost full credit) on scores on the midterm and final examinations. As reported, students may have been overwhelmed by the amount of content and learned some of the material, but not all of the content. Also, the midterm has a variety of question types, including multiple choice and matching. In addition, there were application questions that involved watching videos focused on teacher–child interactions. Although the students had experience with this type of activity throughout the course, their lower scores on the midterm may indicate that this is an emerging skill and/or this content is still more abstract than content related to language and literacy. It is also possible that in previous courses students had not experienced questions that required them to apply their knowledge as was required on this examination. Perhaps students' low scores were related to their limited experience with examination questions of this type. We noted that the final examination scores were higher than the midterm scores, perhaps indicating that students scored higher after having an opportunity to learn how to complete the applied examination questions. Results from the student outcome measures suggest that additional work is needed to better understand who and under what conditions students are able to master what type of content of the course.

Limitations of the Study

Although this study can make a significant contribution to our knowledge of providing course content in teacher preparation programs, there are several limitations readers should keep in mind when interpreting information and results from the study. The first, and perhaps most significant, limitation is the research design and the size of the sample included in the study. With only three teacher preparation programs and 49 students, the sample is not representative of the total number of institutions of higher education that graduate thousands of early childhood educators each year (Maxwell et al., 2006). Furthermore, there was no comparison or control group, so we cannot make causal attributions regarding any differences noted between students' pre- and posttest scores on measures of beliefs and knowledge. Nonetheless, the study offers a small glimpse into the feasibility and potential benefits of offering a research-based course using a specific conceptual framework designed to enhance students' knowledge and beliefs regarding intentional teaching practices.

Selection of the institutions and individuals who participated in the study is a second limitation. Neither the sites nor the individuals who participated were randomly selected. Instead, the institutions and instructors were recruited because they were interested in the dimensions of effective teaching included in the *CLASS* instrument and were open to implementing a standardized course with limited opportunities for instructor input into the course content or how it was delivered. The students who participated were willing to enroll in a course that differed somewhat from courses typically offered on their campus, but they had limited options for alternate courses. In two of the three institutions, there was no other section of the course being offered so students had to take the NCRECE course if they wanted credit for the required course during the semester in which it was offered. Thus, there are numerous possible sources of selection bias inherent in the study.

Another limitation of the study is the lack of data on students' actual practices with children. Data were only collected from students while they were enrolled in the course which did not have a classroom experience component. The data, therefore, reflect acquired knowledge and not how this knowledge will be implemented in the classroom. While we have some basis upon which we can reasonably expect that the changes in students' knowledge and beliefs would be associated with more effective teaching practices, we do not have evidence from this study to support this assertion.

A final limitation is the potential for instructor differences in the implementation of the course. Although, procedures were put in place (such as weekly calls to review content prior to each course session) to assist instructors with the delivery of the course, the inherent differences in teaching style, familiarity with the content, and teaching experience may have resulted in differences in how the course was implemented and variations in student outcomes. Although the instructors reported that they implemented the course as designed and no significant departures from the course design were noted in the weekly calls with the NCRECE Principal Investigator, it is possible that one or more of the instructors deviated from the instructions when teaching. While fidelity in implementing the course is an important consideration in a research study such

as this and also is important in an effort to promote consistent student outcomes, widespread implementation of a course of this type certainly raises issues related to instructor differences, teaching style, and academic freedom that should be considered in any effort to implement a "prepackaged" course.

Implications for Future Research

Although this study presents a unique opportunity to contribute to the field's knowledge regarding teacher preparation, further research is needed to better understand how teacher preparation programs can best prepare students to be effective teachers. First, the current study should be replicated with a larger and more diverse sample of teacher preparation programs. Data from additional 2- and 4-year institutions, including 4-year institutions that have different types of degree programs or teacher licensure options, would provide valuable information on how a standardized course such as the NCRECE course is implemented within these institutions and on learning outcomes for students. A replication study should also include, if possible, random selection of participating institutions and students to provide stronger evidence of a causal relationship between the course and student outcomes. Further research is also needed to determine which students might benefit most from this type of course. Perhaps students with more experience working in the classroom or students who are currently teaching might learn more because they have the opportunity to practice what they are learning as they work with children. Additional research with a larger group of students who are randomly selected would provide further information on the conditions under which the course is most effective.

Additional research on teacher preparation efforts such as the NCRECE course should also include observational data of participants' teaching practices and, ideally, data on outcomes for children enrolled in participants' classrooms. Longitudinal research is needed to follow student participants into the classroom. This type of research might collect data on participants' teaching practices during practica and student teaching experiences, and then collect data on their teaching practices (and child outcomes) once they graduate and begin their teaching careers. Observations on participants' teaching practices collected over an extended period would provide evidence as to whether the changes in beliefs and knowledge that were associated with the NCRECE course result in more effective teaching practices.

Finally, additional research is needed to determine the feasibility of implementing a predeveloped course such as the NCRECE course in different types of institutions of higher education. Faculty in teacher preparation programs typically are responsible for determining the content and how a course is delivered, often with some eye toward teacher licensure standards or other state-level requirements. Teacher preparation programs also have to meet NCATE standards and the requirements of other accrediting bodies. Furthermore, institutions of higher education have bureaucratic processes in place that govern the types of courses that can be offered and how a new course can be introduced or the content of an existing course can be revised. Considerations such as these present challenges to the idea of a predeveloped course

being offered across multiple higher education settings. Instructors may be reluctant to give up their autonomy to teach a predeveloped course, or might elect to adapt portions of the course thereby reducing the fidelity to the course design. Early childhood teacher preparation programs may be reluctant to adopt a predeveloped course. This is particularly true for a course like the NCRECE course, which includes content related to both teacher–child interactions and language and literacy development. It is, perhaps, more common for teacher preparation programs to offer a course on language and literacy development and a separate course on teacher–child interactions (or incorporate this information in other courses). Therefore the NCRECE course is a new model for professional development and may not "match" current course offerings, meaning that it may be more difficult to introduce into teacher preparation programs.

Conclusion

This study examined the implementation of a standardized course combining content related to effective teacher–child interactions and language and literacy across three institutions of higher education. It included instructor perspectives about design and delivery as well as students' perspectives of content and delivery and their associated changes in beliefs and knowledge. The course was successfully implemented in three institutions, and the course content was viewed positively by instructors and students. And, students showed growth in their understanding and beliefs related to intentional language and literacy teaching practices. This is, perhaps, a promising approach to strengthen early childhood teacher preparation programs. Additional research is needed to test the efficacy and feasibility of offering a predeveloped course in multiple higher education settings and assessing the outcomes for students and children.

Acknowledgments

Appendix A: *CLASS* Framework From the Classroom Assessment Scoring System (*CLASS*) (Pianta, La Paro, & Hamre, 2008)

Domain	Dimension	Description
Emotional support	Positive climate	Reflects the overall emotional tone of the classroom and the connection between teachers and students. Considers the warmth and respect displayed in teachers and students interactions with one another as well as the degree to which they display enjoyment and enthusiasm during learning activities.

	Negative climate	Reflects the overall level of expressed negativity in the classroom. The frequency, quality, and intensity of teacher and peer negativity are key to this scale.
	Teacher sensitivity	Encompasses teachers' responsivity to students' needs and awareness of students' level of academic and emotional functioning. The highly sensitive teacher helps students see adults as a resource and creates an environment in which students feel safe and free to explore and learn.
	Regard for student perspectives	The degree to which the teacher's interactions with students and classroom activities place an emphasis on students' interests, motivations, and points of view, rather than being very teacher-driven. This may be demonstrated by teachers' flexibility within activities and respect for students' autonomy to participate in and initiate activities.
Classroom organization	Behavior management	Encompasses teachers' ability to use effective methods to prevent and redirect misbehavior, by presenting clear behavioral expectations and minimizing time spent on behavioral issues.
	Productivity	Considers how well teachers manage instructional time and routines so that students have the maximum number of opportunities to learn. Not related to the quality of instruction, but rather teachers efficiency.
	Instructional learning formats	The degree to which teachers maximize students' engagement and ability to learn by providing interesting activities, instruction, centers, and materials. Considers the manner in which the teacher facilitates activities so that students have opportunities to experience, perceive, explore, and utilize materials.
Instructional support	Concept development	The degree to which instructional discussions and activities promote students' higher order thinking skills versus focus on rote and fact-based learning.
	Quality of feedback	Considers teachers' provision of feedback focused on expanding learning and understanding (formative evaluation), not correctness or the end product (summative evaluation).

	Language modeling	The quality and amount of teachers' use of language-stimulation and language-facilitation techniques during individual, small-group, and large-group interactions with children. Components of high-quality language modeling include self and parallel talk, open-ended questions, repetition, expansion/extension, and use of advanced language.

References

1. Bayat, M. 2010. Use of dialogue journals and video-recording in early childhood teacher education. *Journal of Early Childhood Education*, 31: 159–172.

2. Birman, B. F., Desimone, L., Porter, A. C. and Garet, M. S. 2000. Designing professional development that works.*Educational Leadership*, 17: 613–649.

3. Borko, H. 2004. Professional development and teacher learning: Mapping the terrain. *Educational Researcher*, 33(8): 3–15.

4. Burchinal, M. R., Roberts, J. E., Riggins, R., Zeisel, S. A., Neebe, E. and Bryant, D. 2000. Relating quality of center-based child care to early cognitive and language development longitudinally. *Child Development*, 71: 339–357.

5. Burgess, K. A., Lundgren, K. A., Lloyd, J. W. and Pianta, R. C. 2001. *Preschool teachers' self-reported beliefs about literacy instruction. CIERA (Center for the Improvement of Early Reading Improvement) Report 2-012*, Ann Arbor, MI: University of Michigan.

6. Cochran-Smith, M. and Zeichner, K. M. 2005. *Studying teacher education: The report of the AERA panel on research and teacher education*, Washington, DC: American Educational Research Association.

7. Cunningham, A. E., Zibulsky, J. and Callahan, M. 2009. Starting small: Building preschool teacher knowledge that supports early literacy development. *Reading and Writing*, 22: 487–510.

8. Curby, T. W., LoCasale-Crouch, J., Konold, T. R., Pianta, R. C., Howes, C., Burchinal, M. … and Barbarin, O. 2009. The relations of observed Pre-K classroom quality profiles to children's achievement and social competence. *Early Education and Development*, 20: 346–372.

9. Dewey, J. 1933. *How we think*, New York, NY: Dover Publications.

10. Early, D. M., Bryant, D. M., Pianta, R. C., Clifford, R. M., Burchinal, M. R. and Ritchie, S. 2006. Are teachers' education, major, and credentials related to classroom quality and children's academic gains in pre-kindergarten?.*Early Childhood Research Quarterly*, 21: 174–195.

11. Early, D. M., Maxwell, K. L., Burchinal, M., Alva, S., Bender, R. H., Bryant, D. … and Zill, N. 2007. Teachers' education, classroom quality, and young children's academic skills: Results from seven studies of preschool programs. *Child Development*, 78: 558–580.

12. Francis, D. 1995. Reflective journal: A window to preservice teachers' practical knowledge. *Teaching and Teacher Education*, 11: 229–241.

13. Hamre, B. K. and Downer, J. T. 2007. *Beliefs about intentional teaching*, Charlottesville, VA: University of Virginia Printing Services.

14. Hamre, B. K. and Justice, L. M. 2007. *Knowledge about literacy and language*, Charlottesville, VA: University of Virginia Printing Services.

15. Hamre, B. K. and Pianta, R. C. 2001. Early teacher-child relationships and the trajectory of children's school outcomes through eighth grade. *Child Development*, 72: 625–638.

16. Hamre, B. K. and Pianta, R. C. 2007. "Learning opportunities in preschool and early elementary classrooms". In*School readiness and the transition to kindergarten in the era of accountability*, Edited by: Pianta, R. C., Cox, M. J. and Snow, K. L. 49–83. Baltimore, MD: Paul H. Brookes Publishing Co.

17. Hamre, B. K., Pianta, R. C., Burchinal, M., Field, S., Locasale-Crouch, J. and Downer, J. under review. A course on supporting early language and literacy development through effective teacher-child interactions: Effects on teacher beliefs, knowledge, and practice. *American Educational Research Journal*,

18. Hindman, A. H. and Wasik, B. A. 2008. Head Start teachers' beliefs about language and literacy instruction. *Early Childhood Research Quarterly*, 23: 479–492.

19. Hin Wai Young, B., Wong, S. L., Cheng, M. W., Hui, C. S. and Hodson, D. 2007. Tracking pre-service teachers' changing conceptions of good science teaching: The role of progressive reflection with the same video. *Research in Science Education*, 37: 239–259.

20. Howes, C., Burchinal, M., Pianta, R., Bryant, D., Early, D., Clifford, R. M. and Barbarin, O. 2008. Ready to learn? Children's pre-academic achievement in pre-kindergarten programs. *Early Childhood Research Quarterly*, 23(1): 27–50.

21. Hyson, M. and Biggar, H. 2005. "NAEYC's standards for early childhood professional preparation: Getting from here to there". In *Critical issues in early childhood professional development*, Edited by: Zaslow, M. and Martinez-Beck, I. 283–308. Baltimore, MD: Brookes.

22. Hyson, M., Tomlinson, H. B., & Morris, C. A. S. (2009). Quality improvement in early childhood teacher education: Faculty perspectives and recommendations for the future. *Early Childhood Research and Practice, 11*(1). http://ecrp.uiuc.edu/v11n1/hyson.html (http://ecrp.uiuc.edu/v11n1/hyson.html)

23. Justice, L. M., Mashburn, A., Hamre, B. K. and Pianta, R. C. 2008. Quality of language and literacy instruction in preschool classrooms serving at-risk pupils. *Early Childhood Research Quarterly*, 23(1): 51–68.

24. Lobman, C., Ryan, S., & McLaughlin, J. (2005). Reconstructing teacher education to prepare qualified preschool teachers: Lessons from New Jersey. *Early Childhood Research & Practice, 7*(2). http://ecrp.uiuc.edu/v7n2/Lobman.html (http://ecrp.uiuc.edu/v7n2/Lobman.html)

25. LoCasale-Crouch, J. and Jacobson, L. 2007. *Teachers' knowledge of effective teacher-child interactions* Charlottesville, VA: University of Virginia Printing Services

26. Mashburn, A. J., Pianta, R. C., Hamre, B. K., Downer, J. T., Barbarin, O. A., Bryant, D. … and Howes, C. 2008. Measures of classroom quality in prekindergarten and children's development of academic, language, and social skills. *Child Development*, 79: 732–749.

27. Maxwell, K. L., Lim, C.-I. and Early, D. M. 2006. *Early childhood teacher preparation programs in the United States: National report*, Chapel Hill, NC: The University of North Carolina, FPG Child Development Institute.

28. McGee, L. M. and Richgels, D. J. 2003. *Designing early literacy programs: Strategies for at-risk preschool and kindergarten children*, New York, NY: The Guilford Press.

29. National Council on Teacher Quality. (2004). *Increasing the odds: How good policies can yield better teachers*.http://www.nctq.org/p/publications/docs/nctq_io_20071129024229.pdf (http://www.nctq.org/p/publications/docs/nctq_io_20071129024229.pdf)

30. National Early Literacy Panel. 2008. *Developing early literacy: Report of the National Early Literacy Panel*, Washington, DC: National Institute for Literacy.

31. NICHD, ECCRN, National Institute of Child Health and Human Development, Early Child Care Research Network.2000. The relation of child care to cognitive and language development. *Child Development*, 71: 960–980.

32. NICHD, ECCRN, National Institute of Child Health and Human Development, Early Child Care Research Network.2002. The relation of global first-grade classroom environment to structural classroom features and teacher and student behaviors. *The Elementary School Journal*, 102: 367–387.

33. Peisner-Feinberg, E. S. and Burchinal, M. R. 1997. Relations between preschool children's child-care experiences and concurrent development: The cost, quality, and outcomes study. *Merrill-Palmer Quarterly*, 43: 451–477.

34. Pianta, R. C. and Hamre, B. K. 2001. *Students, teachers, and relationship support [STARS]: User's guide*, Lutz, FL: Psychological Assessment Resources, Inc.

35. Pianta, R. C., Howes, C., Burchinal, M., Bryant, D., Clifford, R., Early, C. and Barbarin, O. 2005. Features of pre-kindergarten programs, classrooms, and teachers: Do they predict observed classroom quality and child-teacher interactions?. *Applied Developmental Science*, 9: 144–159.

36. Pianta, R. C., La Paro, K. M. and Hamre, B. 2008. *The Classroom Assessment Scoring System, Pre-K Version*, Baltimore, MD: Paul H. Brookes.

37. Rimm-Kaufman, S. E., Curby, T., Grimm, K., Nathanson, L. and Brock, L. 2009. The contribution of children's self-regulation and classroom quality to children's adaptive behaviors in the kindergarten classroom. *Developmental Psychology*, 45: 958–972.

38. Rosaen, C. L., Lundeberg, M., Cooper, M., Fritzen, A. and Terpstra, M. 2008. Noticing noticing, how does investigation of video records change how teachers reflect on their experiences?. *Journal of Teacher Education*, 59: 347–360.

39. Sherin, M. G. and Han, S. Y. 2004. Teacher learning in the context of a video club. *Teaching and Teacher Education*, 20: 163–183.

40. Wang, J. and Hartley, K. 2003. Video technology as a support for teacher education reform. *Journal of Technology and Teacher Education*, 11(1): 105–138.

41. Whitebook, M., Bellm, D., Lee, Y. and Sakai, L. 2005. *Time to revamp and expand: Early childhood teacher preparation programs in California's institutions of higher education*, Berkeley, CA: Center for the Study of Child Care Employment, University of California at Berkeley.

42. Whitebook, M., Gomby, D., Bellm, D., Sakai, L. and Kipnis, F. 2009. *Preparing teachers of young children: The current state of knowledge, and a blueprint for the future. Executive Summary*, Berkeley, CA: Center for the Study of Child Care Employment, Institute for Research on Labor and Employment, University of California at Berkeley.

43. Zaslow, M. and Martinez-Beck, I. 2005. *Critical issues in early childhood professional development*, Baltimore, MD: Brookes Publishing.