Mediated Lesson Study, Collaborative Learning, and Cultural Competence Among Early Childhood Educators

Circie West-Olatunji
Linda Behar-Horenstein
Jeffrey Rant
University of Florida

Abstract. Early childhood educators have competing demands that minimize their ability to utilize evidence-based practices and respond to the challenges posed by culturally diverse classrooms. Using a case study method, we studied four female early childhood teachers at a university-affiliated preschool who developed mini-research projects using a mediated form of lesson study. Findings showed that the collegial nature of a mediated form of lesson study resulted in reflective practices and increased professional collaboration among the teachers. However, there was no resultant change in the ways that the teachers used their cultural awareness in their teaching. Results have implications for teacher educators, early childhood education teachers, and preschool directors with regard to teacher efficacy and practitioner inquiry.

Hernandez (2004) predicts that at some time between 2020 and 2030, 50% of children in the United States will be from culturally diverse backgrounds. As U.S. society becomes more diverse, early childhood educators will be working with students from various ethnic, economic, cultural, and linguistic backgrounds. Teachers must develop the skills, knowledge, and attitudes necessary to be effective in multicultural settings (Espinosa, 2005). In order to help all students, teachers must be able to reflect on diversity in numerous ways by responding to students’ learning styles, cultural differences, developmental needs, and the personality differences among children, parents, community members, and other school personnel (Landerholm, Gehrie, & Hao, 2004). Such cultural knowledge and skills can aid teachers in building collaborative relationships with culturally, linguistically, and economically diverse parents (Barbour, Barbour, & Scully, 2005; West-Olatunji & Behar-Horenstein, 2005).

Teacher education programs can provide early childhood educators with a firm understanding of multiculturalism. However, it may be difficult to teach specific skills that will be effective with all the diverse groups that may constitute classroom communities. Therefore, teacher education programs can teach students to be flexible in their thinking and teaching. One skill that can help teachers adapt and learn to be successful with students of diverse ethnicities, socioeconomic classes, or cultures is reflective thinking. Reflection is the ability to assess situations and make thoughtful, rational decisions (Landerholm et al., 2004). Fostering reflective practitioners has become a major goal of many teacher education programs (Hobson, 2001). One strategy to foster such reflectivity and increased cultural competency has been the use of master teachers as mentors (Doyle, 1985; King, Henington, & Ladson-Billings, 2003). Additionally, lesson study has been reported to be another tool that promotes
reflective thinking (Lewis, Perry, & Murata, 2006).

Moreover, early childhood teachers must contend with competing demands that challenge their ability to provide quality instruction. These demands minimize their ability to utilize evidence-based practices and colleague collaboration to solve classroom problems. Little time is allotted to plan, dialogue, and collaborate with colleagues, or reflect upon evidence-based practices that may help ameliorate classroom issues. Boyer (2000) asks, “When do teachers and the school community have the time to organize and ensure that academic standards and personal excellence of students are being promoted?” (p. 52). Further, the conflict between available time and the demands on teachers draws a distinction between the academic instruction and social services they provide (Meek, 2003). Early childhood teachers function as nurturers as much as they do instructors. The nature of early childhood education and the manner in which teachers are utilized often create a significant barrier to the delivery of critical knowledge to students. Early childhood education can provide the building blocks for students to realize success throughout their education and into adulthood (American Academy of Pediatrics, 2005; Kemple, David, & Hysmith, 1997). However, unsuccessful early childhood experiences can leave children with unmet needs relative to social competence and self-esteem (Dunn, 1999; Kemple et al., 1997).

Using a narrative framework, the researchers conceptualized how early childhood teachers might resolve issues through a mediated form of lesson study. The philosophical roots of narrative inquiry lie in postmodernism and social constructivism, wherein reality is viewed as subjective and based on one’s perspective that emanates from engagement in the world (Creswell, 2005, 2006; Semmler & Williams, 2000). As such, multiple realities co-exist because reality is neither absolute nor objective. O’Hanlon (1994) suggests that cultural systems also shape people’s lives and thus must be considered when conceptualizing problems and developing solutions within a narrative context. The primary purpose of this study was to investigate the usefulness of a mediated form of lesson study in promoting collaboration and cultural competence among early childhood educators.

Review of Literature
Lesson Study
Lesson study is a form of reflective teaching that uses collaborative dialogue to engage teachers in a collective assessment of their classroom practices. Many U.S. educators are interested in this Japanese method of practitioner-driven inquiry because of its inherent focus on teachers as researchers (Lewis et al., 2006). The term “lesson study” is derivative of the Japanese word jugyokenkyu, in which the word jugyo (lesson) is combined with the word kenkyu (study or research). Lesson study began in the early 1900s and was used by Japanese educators with children and young adolescents in math and science classes (Fernandez, 2002). Today, lesson study is widely used across the continuum from secondary to preschool settings.

The process of lesson study facilitates reflection, collaboration, and collegiality among teachers as they design and evaluate their lessons (Lewis & Tsuchida, 1988). At the beginning of a project, the team of teachers generates a research question and creates a specific lesson plan for a particular subject that they have chosen to study. The team observes the lesson as it is taught and then re-evaluates the plan, making any necessary changes. The cycle is repeated as often as is needed throughout the period of inquiry. Following the lesson, teachers develop a report based on their findings and distribute it to the school community. The focus of the investigation could be on assisting a child who is overly anxious, developing counting or basic literacy skills, or targeting a particular grade level or subject area. The number of teachers on a lesson study team may vary and the scope of their interaction
may be a classroom, a particular school, or it may be regional or statewide (Fernandez, 2002).

Lesson study is becoming a popular professional development tool in the United States (Lewis, 2000), particularly in mathematics education (Fernandez, Cannon, & Chokshi, 2003). Adapting lesson study for use in the United States presents many challenges, especially in the development of research skills. Fernandez et al. (2003) found that teachers typically had difficulty posing sound questions, conceptualizing a classroom experiment, and articulating what artifacts might serve as evidence. The approach to lesson study in Japan is systematic and it promotes the formation of supportive, collaborative networks within the school. Teachers have flexible schedules that are conducive to their participation in group meetings. Such an environment is antithetical to the autonomy and isolation that most U.S. teachers experience (Gonzales, 2004). More than three decades ago, Lortie (1975) characterized the climate in U.S. schools as an “impoverished understanding of one another’s abilities and activities” (p. 89). Schools today are no different.

The researchers used a modified form of lesson study that allowed the participants to engage in reflection and collaboration, processes inherent in lesson study. However, we did not fully use lesson study due to limitations at the setting, such as high turnover among instructional teams, an emergent curriculum, and lack of exposure to teacher inquiry/teacher collaborative models of teaching. As such, teacher participants were allowed to develop mediated lesson study projects that investigated phenomena and informed the curriculum for each of their developmental instructional teams.

Collaborative Learning
Collaboration is utilized widely in educational settings throughout the world (Tsaparlis & Gorezi, 2005). Used in many different classroom settings, collaborative learning can be applied to almost every subject, ranging from chemistry and statistics (Davis & Blanchard, 2004) to writing progress reports for special education students (Webre, 2005). Every level of education, from kindergarten to higher education, can employ collaborative learning (Slavin, 1990; Vermette, Harper, & DiMillo, 2004). Extant studies have shown that collaborative learning is effective with preservice teachers (Seifert, 2005), teachers and students (Webre, 2005), and among parents, special educators, tutors, and school administrators (Spencer, 2005).

Researchers have shown that when collaborative learning was used, students improved their problem-solving abilities (Fawcett & Garton, 2005). Collaboration has also been shown to: 1) help groups improve their problem-solving abilities, 2) aid teacher-student understanding and rapport building (Davis & Blanchard, 2004; Webre, 2005), 3) facilitate conflict resolution (Stevahn, Johnson, Johnson, Oberle, & Wahl, 2000), and 4) enhance student motivation (Shindler, 2004). Research on collaboration among teachers has focused primarily on ways to counteract teacher autonomy and insularity (McDonald & Klein, 2003), theorizing and reflection (Rust & Meyers, 2006), collegiality (Grunberg & Armellini, 2004; Little, 1982), and burnout prevention (Allen & Miller, 1990).

Collaborative learning is a practice that involves the formation of a small group of teacher-researchers who come together to solve problems and accomplish shared goals (Capobianco, Lincoln, Canel-Browne, & Trimarchi, 2006). Collaboration brings relationships to the foreground and helps teachers regain the personal empowerment needed to effectively address student or classroom problems (Johnson, Johnson, & Holubec, 1991; Slavin, 1990).

We hypothesized that a narrative approach would assist the early childhood educators in viewing classroom issues within the cultural context of their school and community and would allow them to devise solutions that consider context. Moreover, because knowledge is socially constructed, teachers can benefit from the collegial nature of lesson study in which they are asked to collaborate
with one another to discuss their research questions. The researchers asked the question, "Using a mediated form of lesson study, how does teacher reflection/inquiry, within a collegial context, impact the cultural responsiveness of early childhood practitioners' instructional practices?"

Method
In this study, we utilized narrative inquiry as a qualitative method that allowed for poly-vocality and perspectivity among the teachers as they collectively verbalized their reflections on a weekly basis (Jungck, 2001). In turn, participating teachers acted on their synergistic reflections to create reflexivity in their respective classroom interactions with children. Teachers' positioning and proximity to their phenomena under investigation were central to the research process.

The researchers followed the intentions of a case study in order to go beyond the descriptive questions, such as who, what, when, how much, and how many, to answer the questions of how and why (Yin, 1993, 1994). This method provided an ideal research tool to explore the participants' worldviews. Case study research encourages researchers to focus on the context and to be receptive to multiple, interacting influences (Rubaie, 2002). Designed to investigate the rich complexities of social phenomena and the social environments in which they are situated, case study is conceptualized as a useful research strategy (MacPherson, Brooker, & Ainsworth, 2000). Furthermore, use of this heuristic methodological approach allows the researchers to deepen the reader's understanding of the participants' phenomenology in a manner that extends the reader's own experience (Corcoran, Walker, & Wals, 2004).

Participants
Research participants included a purposeful sample of four white female teachers at a child care center/lab school. Their teaching experiences ranged from three to 20 years. In addition, a master teacher was solicited from contacts with teacher educators at the local university. After receiving several names of potential master teachers, the research team reviewed the qualifications of each candidate. They contacted one individual, based upon her years of experience, involvement with prior research studies, and availability to participate in the weekly seminars. The master teacher was a practicing white female teacher with 15 years of elementary education experience.

Procedures
Access to the setting was facilitated by the first author’s affiliation as an advisory board member and informal consultant for early childhood mental health issues with the child care center/lab school. Following approval from the university’s institutional review board (UFIRB#2005-U-606), participants were asked to complete an informed consent form, the application form, and a cultural narrative essay. On the application form, participants were asked to provide demographic information, an explanation of their previous experience with research, a brief essay to indicate their interest in participating in the study, and a potential classroom phenomenon that they would like to investigate. All of the participants, teacher-collaborators, and the authors wrote and shared their cultural narrative essays. This process helped to illuminate how personal historiography shaped instructional strategies and cultural awareness (Henry, 2006).

Data consisted of the application form, cultural biographies, audiotaped weekly reflection sessions, completed lesson study forms (see Table 1), multimedia portfolios that showcased the research findings, and videotaped post-intervention interviews. A post-intervention interview was administered to assess how a mediated form of lesson study process might have influenced teachers’ awareness of how cultural responsiveness can promote effective teaching. Data were analyzed using NVIVO (v. 2.0), a qualitative analysis software tool.

The study participants were oriented to the concepts of culturally appropriate
pedagogy, practitioner-guided research, a mediated form of lesson study, and collaborative learning during six weekly 50-minute professional development workshops provided by the research team. Following the orientation period, teachers were encouraged to concretize their research questions. Subsequently, teachers engaged in nine weeks of audiotaped weekly reflection sessions that lasted approximately 50 minutes each and allowed participants to present their completed lesson study forms. These sessions were held with at least one of the researchers, a process observer, the master teacher, and the study participants. The focus of these sessions was to analyze the lesson plans and identify the gaps between curriculum implementation and the teachers’ research goals. When problems with implementation were revealed, the group process led the participants to ask, “What are we not doing?” and “What do we need to do instead?” In response, group members offered alternative methods that would assist each teacher in reaching the research goal. As an approach, lesson plan was useful in analyzing and reviewing teacher practice as they considered the teachers’ objectives and reported outcomes. Following group feedback, the teacher implemented the revised lesson and recorded the outcomes.

The researchers facilitated discussions and consultations about research and, to some degree, pedagogical assistance, whereas the master teacher provided specific assistance with instructional challenges. Teacher knowledge and growth were evaluated using performance-based assessments, including lesson presentations and portfolios. Rubrics were used to assess lesson presentations and multimedia portfolios (see Table 2). Teachers were observed to assess their ability to demonstrate: 1) reflective practice within a collegial circle, 2) application of sociocultural knowledge, and 3) a deeper understanding of culture, students, and learning. Final presentations of findings were shared orally during the last reflection session and electronically by using digital presentations. During videotaped 20-minute post-intervention interviews, teachers reflected on the overall research experience.

Data Analysis
Data analysis was conducted simultaneously with data collection, data interpretation, and narrative report writing by thematic deconstruction and reconceptualization (Creswell, 2006). In order to strengthen the validity of our findings, two of the researchers coded the data independently and then met weekly to discuss shared themes and to reach consensus regarding the others. The final analysis involved reviewing, coding, and analyzing the data, and then meeting as a research team to reach consensus regarding the themes found.

In addition to the use of multiple data sources and multiple researchers in the data analysis process, verification of results was attained through ongoing member checks regarding the themes found and by sharing the findings with participating teachers. We used NVIVO (v. 2.0) to analyze relationships and to further triangulate data analysis. Our research design aided us in observing relationships and generating causal explanations. Use of narrative allowed us to trace patterns over time.

Results
We expected that the study participants would reflect on and formulate opinions about the use of culturally appropriate pedagogy, reflective teaching, and collaborative learning and their effect on the teaching and learning process. Additionally, we anticipated that teachers would articulate the relevance and application of the master teacher as part of their overall experience. From our review of the literature, we hypothesized that four major themes would be present: reflectivity, professional collaboration, cultural awareness, and personal growth.

A node search of the data showed that the theme of reflectivity was most prevalent (n = 57). Most reflecting occurred as a result
<table>
<thead>
<tr>
<th>1: Steps of the lesson: learning activities and key questions (and time allocation)*</th>
<th>2: Student activities/expected student reactions or responses</th>
<th>3: Teacher's response to student reactions/things to remember</th>
<th>4: Goals and method(s) of evaluation</th>
<th>5: Notes (What Happened? What have you learned?)</th>
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<tr>
<td>This lesson will be open for one hour, but each student will have 10 minutes or more if needed. The children will use toilet paper tubes, rice, and beans. With these items, the children will make rain sticks to go along with the rain forest theme for the week.</td>
<td>I expect the children to be able to pour the rice and beans into the toilet paper tube. I will expect that half the children will be able to place the wax paper on the end of the tube. I expect the students to enjoy playing with the rain stick tubes by dancing with them and hearing the different sounds they make. I also expect that 16 children will do this activity within the one hour of activity time.</td>
<td>I will talk to the children about the importance of rain sticks and what they are used for. I will ask the children how the rain sticks sound. I will ask the children if it gives them a calming sensation and if it makes them want to relax.</td>
<td>My first goal is to have 16 children come to my activity and be able to enjoy it and be able to walk away when done to find another activity “if they want to.” My second goal is that the children understand that the classroom has no borders and that they can choose activities by themselves.</td>
<td>The children enjoyed the activity and only 15 children came to the activity. The children understood the waiting list and waited their turn to make a rain stick. After meeting with the group on Tuesday, the following ideas were discussed. • Next, use a funnel for the children to pour in the seeds or have the children use tweezers. • Use picture cards for a new waiting list system. • Visit other classrooms to see the difference in borderless classrooms • Also see if each classroom has open communication to allow the borderless method to work.</td>
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Guiding Questions

Ex: How should this lesson progress? (How much time should I spend?) Ex: What do I expect of my students? How will they respond? Ex: Is there anything specific I want to remember to do? Any reminders for my students? Ex: What should I look for to know that my goals have been achieved?

of the professional collaboration (n = 40) provided by the collegial circle. Therefore, it appeared that reflectivity and professional collaboration were closely linked. The theme of cultural awareness presented 30 times. Presenting 22 times, empowerment seemed to be related to personal growth (n = 20). In the following section, we will discuss three salient themes: reflectivity/professional collaboration, cultural awareness, and personal growth/empowerment.

Reflectivity and Professional Collaboration
All teachers reported that working as a team was important to them.

That’s one thing I liked about this because in our classroom, we are either a three-member teacher team or a four-member teaching team. So I think it would be really beneficial if we had that ability to come together and kind of work toward a common goal. Be able to observe each other, to teach each other, and ultimately it would make the classroom a better place for you and the children.

We also found that reflectivity and professional collaboration were rarely independent of one another once the study began. One goal of lesson study is to create reflective practitioners, and this was evident in the findings.

The project has altered my teaching methods in looking at my program, my lesson plans. And when I’m looking at students to evaluate and research, I look further. I look more in-depth and look at how I can get students more involved in the activities.

A significant finding was the degree of professional collaboration that occurred as a result of a mediated form of lesson study. During our analysis of the transcripts, we observed that solidarity and collegiality increased among the team. The teachers became more involved with one another, and relied less on the research facilitator to lead the discussions. We observed that it was during these discussions that the teachers became most reflective and inquisitive about what they were doing and how it was working.

You get good feedback. If I got stuck on a problem or if I got stuck with something, I had people to help me through it and help me come up with ideas and vice-versa. If they got stuck on something, whether it was good criticism or bad criticism, we had somebody making us think and pushing us along a little bit more and it was real helpful. I liked it.

The reflections and subsequent feedback were constructive and positive. As the teachers became more comfortable with the process of collegial inquiry, they became more open and trusting, and that led to more reflection and collaboration.

They were good at making suggestions on how, like teaching one little aspect, how it might work better or how I might incorporate language that would make it come across in a clearer fashion to the kids. So we critiqued each other, but it was always very positive.

Cultural Awareness
In this study, participants viewed themselves as teachers of culturally diverse students and did not articulate that they saw themselves as cultural beings in their own right. Although we discussed the concept of culturally appropriate pedagogy, it was observed that the teachers’ cultural narratives lacked an in-depth exploration of culture. Although teachers recognized cultural differences, they lacked an awareness of how an understanding of culture impacts learning. For example, teachers addressed the issue of culture in their narratives.

The school was 90% minority and I was one of the only white people in the aftercare program. That was my first experience in a position where I was the odd man out. It ended up being one of the most positive experiences that I’ve been in.

This teacher expressed an awareness of difference, but did not articulate how these dif-
ferences might impact classroom dynamics, teaching strategies, and learning.

Another teacher focused her mediated lesson study on a child who was fretful and was uncooperative during nap times. This child's behavior was a daily challenge for this teacher. At the onset of the experience, this teacher shared her frustration with the child because nothing she did seemed to be effective in getting the child to lie down with the other children in her cot during nap period. Toward the middle of the experience, the teacher began to hypothesize about the child's behavior and ask questions of the other practicing teachers about what she could do that might be more effective. At the end of the experience, the teacher pondered how the familial and cultural norms might influence the child's expectations about sleep time and the role of caretakers in that process. She was then able to hypothesize about the child's family system and eventually decided to engage the parent in the problem-solving strategies. While a

### Table 2

**Rubrics for Assessing Teacher Outcomes**

**Principles.** The purpose of using these rubrics is for you to determine the extent to which your lesson(s) have incorporated the principles of our research grant. Please use the chart below to indicate evidence of your incorporation of the principles shown on the left.

<table>
<thead>
<tr>
<th>Principles of Mediated Lesson Study Inquiry</th>
<th>Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>Centering:</strong> There is a connection between the subject matter and the student's cultural background. The subject matter incorporates a perspective that integrates culturally diverse resources, including those from the student's family and community.</td>
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<tr>
<td>2. <strong>Ethical Considerations:</strong> The lesson demonstrates a sensitivity to ethical considerations. Dignity, respect, integrity, and concern for the student's welfare should be reflected in the lesson(s) at all times.</td>
<td></td>
</tr>
<tr>
<td>3. <strong>Authentic Assessment:</strong> Assessment is authentic, age-appropriate, and addresses a variety of developmental needs, conceptual abilities, and curriculum outcomes.</td>
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<td>4. <strong>Collaborative Study and Reflection:</strong> The inquiry process(es) included collaborative collegial/peer observations and &quot;public&quot; observation(s) of a lesson(s) or review of student work. &quot;Public&quot; observation(s) can include other colleagues, administrators, parents, elders, or a university-based colleague. Such collaboration has been incorporated in a mediated lesson study-reflection-improvement of instruction activities.</td>
<td></td>
</tr>
<tr>
<td>5. <strong>Use of Student Work:</strong> The inquiry process generated data about student work that was used to re-teach the lesson(s) or to improve instruction in some way(s).</td>
<td></td>
</tr>
<tr>
<td>6. <strong>OTHER:</strong> (Please specify)</td>
<td></td>
</tr>
</tbody>
</table>

mediated form of lesson study process assisted the teacher in becoming more reflective about integrating the child's familial values into instruction, this teacher did not articulate awareness of these teaching strategies as cultural competence. As such, while teachers would often consider culture as a factor, they did not pose research questions in their lesson studies that centered on cultural awareness. Overall, cultural awareness played a less prominent role in our findings than we expected.

_Personal Growth/Empowerment_

The teachers reported feeling empowered by participating in a mediated form of lesson study experience. The goal of lesson study is to create reflective practitioners who can collaborate with colleagues to discover ways to effectively teach their students. This was exemplified by the following:

It made me communicate more with my team about problems, and it has enabled me. I think that in the future I can use the lesson [study] template to work with my team on issues and problems that occur in the classroom and I think that it will help me more in the future.

This mediated lesson study experience provided teachers with the skills to view problems in new ways. Asking teachers to develop a research question allowed them to reflect on questions they had or problems that they were experiencing in the classroom or during instruction. This process forced the teachers to conceptualize problems differently. In addition to mediated lesson study and collaboration, teachers became more effective and thoughtful about the importance of planning for instruction (Behar-Horenstein, 1994).

I think the one thing that has changed is my preparation skills. This allowed me to really look ahead and think more precisely [about] what I want to do and, as a result, I think I got a more desirable outcome.

All participants in the study gained an understanding of how a mediated form of lesson study could be a useful tool for improving their teaching practices. Teachers reported feeling empowered by their participation in the study. They stated that the collegial nature of the project increased collaboration, and the constructive feedback that they received increased their overall teaching abilities. Counter to our expectations, teachers did not articulate any acknowledgement of the master teacher as relevant to their growth and development.

_Significance_

Lesson study allows teachers to engage in collegial inquiry so that they can thoroughly and efficiently reflect upon their practices (Fernandez & Chokshi, 2002; Hiebert & Stigler, 2000). We found that by engaging teachers in collaborative learning, a support system evolved whereby they felt safe enough to disclose and share classroom challenges and receive peer assessment.

Over time, the teachers acquired a researcher-practitioner identity. Initially, they deferred authority regarding their research questions to the principal investigators. The nature of the weekly discussion changed from a more didactic exchange between an individual teacher and the researchers to discourse among the team. Current research investigating teacher inquiry focuses on encouraging teachers to problem solve about challenges in their classrooms. This is of particular importance in culturally diverse classrooms because of the poorly aligned expectations, insufficient communication, and minimal cooperative efforts between children's home cultures and that of the school (Barbour et al., 2005).

There were no outcomes from using a master teacher to facilitate discussions and to problem solve about classroom or instructional challenges. The researchers hypothesized that this may have been due to several factors. First, the master teacher was not known to the participants prior to the study and was not a member of the faculty/staff at the child care center. Second, the master teacher often arrived
10 minutes after the start of each reflection session due to her teaching responsibilities and travel time to the center. Third, the master teacher was unable to participate in the six weeks of orientation prior to the onset of their research projects. These inhibitors may have prevented the master teacher from establishing trust and credibility with the participating teachers. As such, participants may not have used the master teacher as a resource as expected.

One benefit of the collaborative learning and reflective inquiry that was greater than we anticipated was teacher empowerment. At the outset of the study, the teachers focused their discussion on the demands in their classrooms and mentioned not receiving enough support or instruction. They even suggested that participation in the study might have been an imposition. However, over time, they described the benefits of the time away from their daily work tasks to sit and reflect, theorize, and pose solutions to their own instructional challenges as well as those of others.

The results of this study have implications for teacher educators who seek to improve candidates’ understanding of multiple realities, critical thinking and reflective teaching skills, and use of collaborative learning approaches. Core teacher-education courses can promote teachers’ abilities to inquire into their own teaching practices and student learning (Behar-Horenstein, 1994; Valli, van Zee, Rennert-Ariev, Mikeska, Catlett-Muhammad, & Roy, 2006). This process can enhance teaching practice as well as student outcomes. Professional development centered on inquiry will serve as a mechanism to promote teacher efficacy and individual agency (Snow-Gerono, 2005).

The study is relevant to early childhood educators who seek to promote teacher empowerment. The findings suggest that early childhood teachers benefit when provided the opportunity to creatively and collaboratively design curricula that meet students’ needs. Vali et al. (2006) found that practitioner inquiry empowers teachers to become leaders.

Results showed that teachers felt empowered and were able to more effectively address problems collectively. Teacher collaboration on problem solving and curriculum development will enhance preschool instruction and student learning. The findings also have significance for preschool center directors, who regularly deal with supervision and administration of curriculum development and instruction for diverse student populations.

Discussion
The success of lesson study in Japan may be due to the culturally embedded characteristics in the practice. Lesson study is a culturally centered professional development tool that stresses group rather than individual goals and outcomes. Interest in lesson study has increased recently in the United States. Further research examining its impact on U.S. teacher professional development is likely to continue to show its benefits (Lewis, Perry, & Murata, 2006).

The current plethora of master teacher education programs and certification criteria suggests that teacher educators have accepted the master teacher concept as a proven resource to augment teacher inquiry, reflection, and professional development. This study found no observable outcomes as a result of using a master teacher with early childhood educators. Future research in this area should focus on the significant characteristics of a master teacher that have positive outcomes for early childhood practitioners. Additionally, investigation into the tasks that influence the teacher-mentor relationship is warranted. Finally, it is important to conceptualize and clarify relevant teacher-mentor interactions that yield positive outcomes for early childhood educators, as well as for teachers at the primary, middle, and high school levels.

Tice (1999) has suggested a similar paradigm shift, reporting that 1) there is an increasing focus on knowledge construction rather than the banking concept of learning, 2) faculty are becoming less autonomous and thus building more cross-disciplinary
partnerships, 3) educational researchers are becoming less individualistic in their work and more collaborative, and 4) isolated research is moving toward greater research in the public interest (Popkewitz, 2006). Educators need to consider alternative modes of scholarship in which they conduct collaborative research in and with school communities. This form of engaged scholarship can transform the role of teacher educators. Faculty who are engaged in research as partners with school communities foster a mutually beneficial relationship (Boyer, 2000). This is possible when the university puts its research into action, thereby allowing schools an opportunity to receive additional resources that may not have been available otherwise.

When early childhood educators can function effectively in conceptualizing and responding to the needs of young children, particularly when working in culturally diverse classrooms, they are able to serve as catalysts for children’s intellectual growth and development. Further, investment in the professional development of early childhood practitioners places emphasis on prevention rather than rehabilitation of students’ educational problems that often become evident during the adolescent years. As stated above, while current efforts to explore the utility of lesson study in the United States have focused on mathematics education at the middle and high school levels, the first author of this article gained knowledge about lesson study from early childhood educators while providing teacher training in Japan, where it is widely used among practitioners working with young children. More research using lesson study with early childhood educators in the United States can aid teacher educators in understanding how collaboration, reflection, and mentoring can influence teacher efficacy, which, in turn, can augment student achievement, especially for underachieving populations.

In sum, this study examined whether or not early childhood teachers would become more culturally aware, reflective practitioners when they used a mediated form of lesson study within a collegial environment. A case study method was employed to investigate four female, early childhood teachers at a preschool, who developed mini-research projects. Findings showed that reflective practices increased collaboration among the teachers. The collaborative process also yielded teacher empowerment. Subsequent areas of interest in this study and opportunities for future research are the use of master teachers, the benefit of engaged scholarship for faculty, and the investment of professional development for early childhood educators.

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