



Reflections on Project Work in Early Childhood Teacher Education

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Abstract

Project approach allows early childhood teachers to use both child-initiated and teacher-facilitated instructional methods. This article describes what we learned from a study focused on project approach professional development for early childhood teachers who later served as mentor teachers during a field experience for an introductory methods course. The mentor teachers saw their role as guides and supports for early childhood preservice teachers who were placed in teams in their classrooms to implement project approach. Interviews with mentor teachers and document reviews of preservice teacher reflection papers reveal that preservice teachers gained understanding about how child engagement can be fostered through project work and the importance of working as a team. Mentor teachers wanted university faculty to take a more active role in supporting team communication, make visits to the classroom and situate project work in a field experience with enough hours to get to know the children and fully develop each phase of the project. Implications for early childhood teacher educators seeking to incorporate project work in preservice field experiences are shared.

Keywords Field experience · Early childhood education · Preservice teachers · Project approach

Since 1987, the National Association for the Education of Young Children (NAEYC) has led the field of early childhood education in the U.S. in defining what it means for early childhood educators to teach in ways that respect the unique developmental, individual, cultural, and linguistic needs of young children through position statements on developmentally appropriate practice (Bredekamp, 1987). Revisions issued roughly every decade (Bredekamp & Copple, 1997; Copple & Bredekamp, 2009; NAEYC, 2020) reflect the most up-to-date knowledge, understanding, and research. One of the guidelines in the most recent position statement is “Teaching to Enhance Each Child’s Development and Learning.” Included under this guideline is the statement that teachers need to create experiences for young children “that are cognitively and creatively stimulating, invite exploration and investigation, and engage children’s active, sustained involvement.” (NAEYC, 2020, n.p.). NAEYC has also created a position statement concerning the professional preparation of early childhood (EC) teachers (NAEYC, 2019). Teacher education programs are guided to

prepare early childhood teachers to use both child-initiated and teacher-facilitated experiences that are developmentally appropriate, meaningful, and challenging for young children, including those with special needs and cultural and linguistic diversities.

We are two full time early childhood (EC) education faculty members and one part-time faculty member who also serves as the director of a campus-based childcare center at a regional comprehensive university. For many years, we have been engaged in an ongoing process of preparing preservice teachers to support children’s inquiry. Several years ago, we identified project-based learning as exemplified by Helm and Katz (2016) as another way to guide our efforts to support EC preservice teachers in learning how to create and implement authentic, play-based, inquiry-focused learning experiences for young children. When we began to plan how to accomplish this in our students’ field experiences, we quickly realized that we would need cooperating teachers who shared our vision for engaging young children in project-based learning. We thought that field experiences in classrooms in which teachers engage young children in project work might offer a promising avenue for introducing preservice teachers to inquiry-based curriculum and interest-based learning, and that those teachers could provide us with a valuable perspective.

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Our purpose in writing this paper is to describe our process and share the lessons we gained. We examined the following questions: (1) What are the experiences of mentor teachers in using project approach in their classrooms? (2) What is the role of the mentor teachers as preservice teachers implement project work in their classrooms? (3) What are benefits and challenges for preservice teachers using project work in early childhood classrooms?

We begin by briefly reviewing the project approach (Helm & Katz, 2016) and its use in inclusive early childhood settings and review the literature examining project work in early childhood teacher education. We review the central role of high-quality field experiences and the need to partner with cooperating teachers, followed by a review of research on the use of project work in EC teacher education. We then report on our efforts with five cooperating or mentor teachers who agreed to explore with us the incorporation of project approach in a field experience connected to an introductory methods course (for the purposes of this paper, we refer to these teachers as *mentor* teachers). We describe the professional development provided to mentor teachers, the changes that we made to an early childhood methods course, and how we redesigned our field experiences in order to incorporate project work. We share the reflections of the mentor teachers and the EC students they mentored. We conclude with what we learned that we hope may inform and guide EC teacher educators seeking to incorporate project work into field experiences. We use the terms *project-based learning*, *project work*, and *the project approach* interchangeably in this paper to refer to the approach in which teachers support young children to investigate topics in depth and over extended periods of time.

The Project Approach in Early Childhood Education

Internationally, there are a broad range of settings in which early childhood education and preparation take place (Hoot et al., 2016). Diverse curriculum approaches from abroad have inspired and influenced US early childhood education leaders to study how emergent project-based curriculum can be adapted for US programs. Although we draw heavily on the work that Helm and Katz (2016) have done in this country, we recognize that project-based learning has a long history. Advocated by John Dewey and William H. Kilpatrick in the progressive education movement, it was prominent in progressive schools in the 1950s and in the Open Education movement in the late 1960s (Spodek & Saracho, 2003) and was seen as a way to integrate content across disciplinary domains. Project work is similar to the curriculum model developed at Bank Street College of Education in New York City (Zimiles, 1997) and the model made famous by early

childhood programs in Reggio Emilia, Italy (Edwards et al., 1993).

Project-based learning enables children to learn in authentic and meaningful ways through extended, in-depth investigations of topics that are based on child interests and worth learning more about (Helm & Katz, 2016; Katz & Chard, 2000). In project work, children's questions and findings determine the direction and outcomes of the project. Teachers promote higher order thinking skills (i.e., reasoning, creating, problem solving and analysis) and concept development which are associated with higher quality instructional teacher–child interactions in early childhood classrooms (Curby et al., 2009). Project work promotes children's intellectual development by actively engaging them in observation and investigation of topics within their experience and environment (Katz & Chard, 2000). As children conduct field work and collect information on topics of interest to them, the teacher takes on the role of a facilitator, planning experiences to meaningfully integrate literacy and mathematics as tools to support each phase of the investigation.

Project work in early childhood classrooms does not replace existing curriculum approaches; instead, it offers teachers an opportunity to provide more child-initiated investigations of science and social studies content than is currently found in narrow skills-based curricula. Project work can address the increasing diversity of early childhood programs and promote inclusion. In projects, children with and without disabilities engage in learning experiences at their own level to meet their physical, social, and academic goals (Harris & Gleim, 2008; Harte, 2010). Projects allow teachers to create an equitable space that encourages social interactions and participation in culturally relevant and flexible activities, promoting the effective inclusion of children with disabilities into early childhood classrooms. Meaningful experiences with rich vocabulary benefit children, especially children from low-income families and dual-language learners (Hirsch & Moats, 2001). Teachers report that children with special needs have benefitted from participating in project work due to the hands-on nature of activities, selection of topics based on children's interests, use of real objects, and everyday experiences (Beneke & Ostrosky, 2009).

Research has found that practicing early childhood teachers can engage struggling learners and address grade-level standards through project work. (Blank et al., 2014; Mitchell et al., 2009). In a study with three early childhood teachers enrolled in a graduate course on project work, Blank et al., (2014) identified that teachers needed administrative support as well as a personal willingness to embrace uncertainty and approach project work with a spirit of inquiry. Mitchell et al. (2009) conducted a case study of a first-grade teacher who collaboratively negotiated the project focus and

implementation of a project with her students while integrating standards and following children's interests. The teacher used visual webs to facilitate decision making about how to divide teaching responsibilities between the children and the teacher.

Alfonso (2017), a teacher in an inclusive preschool in New York City, conducted a self-study of her efforts to implement child-centered inquiry through the project approach within a school culture of structured, teacher-directed learning. She reported that the children were highly motivated to engage in their own investigations and that she felt empowered by the experience. However, she also reported that the experience of moving from teacher-derived curriculum to emergent curriculum was challenging without the support of a mentor teacher to guide her through her questions and concerns.

The Role of Field Experiences and Mentor Teachers in Early Childhood Teacher Education

Advocacy for high-quality field-based experiences has dominated the conversation about improving K-12 teacher professional preparation over the last 20 years, with calls coming from the New America Foundation (Bornfreund, 2010), the Council for the Accreditation of Teacher Education Programs (formerly the National Council for the Accreditation of Teacher Education (NCATE, 2008), the National Research Council (NRC, 2010), and the American Association of Colleges for Teacher Education (AACTE, 2018). The report of AACTE's Clinical Practice Commission (AACTE, 2018) states that:

Clinical practice serves as the central framework through which all teacher preparation programming is conceptualized and designed. . . . course work complements and aligns with field experiences that grow in complexity and sophistication over time and enable candidates to develop the skills necessary to teach all learners (p. 22).

The report goes on to state that clinical partnerships between P-12 schools and teacher preparation programs are "the vehicle by which the vision of renewing teacher preparation through clinical practice becomes operational" (p. 22), and that "clinical practice intentionally connects course work and field work so that teacher candidates can experience, with support, the interplay between the two" (p. 35).

The National Association for the Education of Young Children (NAEYC, 2019) joins these P-12 professional organizations in calling for field-based experiences in early childhood. However, providing preservice EC teachers with high-quality field experiences in EC is beset by a host of

challenges. As Frances O'Connell Rust writes in the forward to the *Handbook of Early Childhood Teacher Education* (Couse & Recchia, 2016), early childhood teacher education is complex, spanning infancy, toddlerhood, preschool, and the early primary grades. The wide variety of settings, the diversity of education and credentialing of the teachers in these settings, the difficulty in identifying high-quality placements, and the limited university resources for supervision are barriers to high quality field experiences (La Paro, 2016).

Little research has been conducted on field-based experiences specifically in EC teacher education (Baum & Korth, 2013; La Paro, 2016). Baum and Korth (2013) addressed the issue of the skill levels of EC cooperating teachers by conducting a survey of 62 EC teacher preparation programs across the U.S. They report that although almost all (95%) of the programs that responded rated training and support of cooperating teachers *extremely important* or *very important* and none rated it *unimportant*, only 28% reported that they provided cooperating teachers with any sort of training. Reported barriers to providing cooperating teachers with training on how to mentor preservice teachers included lack of funding, logistics, lack of control over professional development efforts, and selection of cooperating teachers.

Maynard et al. (2014) conducted a study of how early childhood preservice teachers describe their field-based experiences following a 12 week, 72 hour placement in an early childhood classroom enrolling infants, toddlers, preschool or kindergarten age children, which was part of methods courses. A qualitative inquiry of 34 students using interviews, journal writing and open-ended questions was conducted. Results indicate that communication in the form of questions, feedback, and advice contributed to preservice teachers feeling valued. Preservice teachers benefitted from receiving both support and freedom to focus on children and connect to course content.

Project Work and Early Childhood Teacher Education

Although not widespread, project work has been used as a vehicle for inquiry in EC teacher education. Moran (2007) conducted a study in which project work was used with 24 preservice teachers in an early childhood methods class. The preservice teachers worked in teaching teams consisting of three to four students to implement a project with a small group of preschoolers over the course of 6 weeks. The collaborative projects allowed the preservice teachers and children to socially construct knowledge within the shared experience of project work. Case studies of two of the teaching teams showed changes in the preservice teachers' orientation to inquiry-based teaching, including increased awareness of

the value of collaboration and shared responsibility in making curricular decisions, early efforts at reflection-in-action, and use of documentation to demonstrate and make visible children's learning.

Eckhoff (2017) conducted a study of 42 EC preservice teachers who were engaged in project work around a life-science project over 6 weeks as part of their 11-week EC science methods class. The preservice teachers worked with two classrooms of kindergarten children and two mentor teachers in a university professional development school. Eckhoff found significant gains in the preservice teachers' understanding of inquiry-based science and science teaching efficacy.

Although mentor teachers play an important role in early childhood preservice teachers implementing project work in field experiences, they are largely missing from the limited research on project work in EC teacher education. Wastin, an early childhood preservice teacher and Han (a teacher educator) conducted an action research study (Wastin & Han, 2014) as the preservice teacher implemented a project on rain and the water cycle in a kindergarten classroom. Reflecting on the experience, the authors concluded that the success of the action research project and the experience for the preservice teacher were influenced positively by the mentor teacher's flexibility, encouragement, and willingness to give the preservice teacher freedom to lead discussions and activities.

Young children benefit when early childhood teachers plan learning experiences and interact to promote executive functions, encourage reasoning and problem solving, and create emotionally positive, structured and stimulating classroom environments (Vandenbroucke et al., 2018). Classrooms that provide these high quality field experiences for preservice teachers can be difficult to locate across all early childhood age groups (NAEYC, 2009). In part, this may be due to the current mismatch between the context of today's increasingly standards-driven schools and educator preparation programs striving to prepare preservice teachers to develop inquiry-based approaches that embrace uncertainty or dilemma (Blank et al., 2014). The past two decades have shown an increasing investment in publicly funded prekindergarten with accountability tied to standards that specify what children should know and be able to do (Graue et al., 2017). The use of packaged curriculum materials and scripted curricula creates a tension between early childhood teacher education programs that promote a child-centered focus on interest-based learning and field experience classrooms that are more teacher-led, due in large part to academic escalation (Brown & Feger, 2010; Graue, 2008; Hatch, 2002). Preservice teachers are aware of the challenges to using inquiry-based approaches in contemporary classrooms (Eckhoff, 2017). Brown and Feger (2010) conducted a case study of three early childhood preservice

teachers to explore how high stakes reforms affected their conceptions of themselves as teachers. The preservice teachers reported wanting to make learning meaningful, avoid teaching to the test, and minimize the impact of reform in their teaching.

Context

Our early childhood teacher education program is part of a comprehensive regional university located in the United States in a small mid-western metropolitan area of approximately 100,000 people. The unified early childhood teacher education program prepares undergraduate students for state licensure to teach young children from birth to third grade, with an emphasis on teaching all children in inclusive settings. EC majors complete at least 100 hours of field experience with infants, toddlers, preschoolers, and primary-grade children in diverse programs prior to student teaching. Although we had strong relationships with local schools for field experiences, limited opportunities were available for preservice teachers to observe or participate in early childhood classrooms in which children were engaged in project work because few mentor teachers possessed the skills and confidence to do project work.

To address this need, the lead author applied for and received a university Summer Enhancement Fellowship for a project, *Professional Development Partnership to Support the Implementation of the Project Approach in Preschool Classrooms*. Sixteen local early childhood teachers were recruited from two area school districts, a campus childcare center, and a private preschool in which we placed students for field experiences. The grant covered the cost of planning and teaching the course and providing follow up classroom-based coaching in the fall. All teachers volunteered for the professional development (PD), and received low-cost licensing renewal credit for participating. (See Table 1 for Project Timeline.)

During the summer, a teaching team of two early childhood faculty and two doctoral students planned and conducted a one-week workshop on incorporating project work into early childhood classrooms. In the weeks before and following the workshop the participants were assigned to read the book *Young Investigators* (Helm & Katz, 2016) and engage in online discussions facilitated by the lead instructor. Follow-up PD carried over into the fall when participants implemented their first project in their own classroom. The university teaching team supported each teacher through on-site coaching meetings. In November, a showcase took place on campus in which participants gathered to present the documentation on their projects to each other and early childhood faculty.

Table 1 Project timeline*Year 1, Summer:*

1. Grant obtained for project: Professional Development Partnership to Support the Implementation of the Project Approach in Preschool Classrooms
2. Creation of online and in-person PD on Project Approach for summer/fall semester
3. Recruitment/enrollment of EC teachers for Project Approach PD
4. One-week Summer workshop and online book discussion

Year 1, Fall:

1. Project Approach PD and coaching continues
2. Fall culminating event: Project Approach showcase

Year 1, Spring:

1. Revision of introductory methods class to include Project Approach component
2. Recruitment of mentor teachers who participated in Project Approach PD for field experience placements

Year 2, Fall:

1. Pilot teaching of revised introductory methods class, with weekly team meetings to evaluate and make changes to class
2. Revision of introductory methods class based on pilot experiences

Year 2, Spring:

1. Teaching of revised introductory methods class
2. Data collection (teacher interviews and collection of student reflections)

Year 2, Summer:

1. Content analysis of student work and teacher interviews

Two EC teacher educators (the second and third authors) made changes to the introductory methods course, Early Childhood Curriculum Development and Organization, in order to include a project-based component. The existing course emphasized integrated curriculum and the value of play, and included a 15-hour field experience. Although project work was addressed through assigned readings, videos, and lectures about the nature of project work, students were not able to actually implement a project due to having other curriculum related assignments in their field experience; instead, they designed a hypothetical project. The instructors revised the course to put more emphasis on project work in both the university classroom and the 15-hour field experience and integrated curriculum areas into the project.

For the 15-hour field experience, the preservice teachers were grouped into teams of 3–4 students and assigned to one of the mentor teachers who participated in the PD the previous summer. The intent of the teams was to collaborate and build a team approach to implementing a project in their classroom and to create a presence of multiple days a week focusing on the project. Bi-weekly summary reports were expected to be shared with the university faculty, mentor teacher, and group members. Each student attended their field experience one day/week for 10 weeks, meaning that each team would have a presence in the classroom 3–4 days a week implementing discussions, activities and experiences that centered on topic selection and project implementation.

Preservice teachers spent the first 2–3 weeks in the classroom interacting with children during center time to develop relationships. Phase 1 of the project was identifying

children's interests that would be possible project topics. After a possible topic was selected and discussed with faculty, a plan was outlined and discussed to explore the topic as a viable interest. Students were expected during this time period to explore interests by conversing with the children about what they knew about the topic and might want to investigate as well as bringing in books and other materials related to the topic. Preservice teachers were then instructed about anticipatory webbing as a group of teachers and webbing with children to help identify children's questions and narrow down a focus for the project. During this phase of topic selection, the preservice teachers were expected to engage in discussions, observe closely, and listen deeply to children's ideas.

Phase 2, implementing the project, required that students communicate with each other and arrange to bring in an expert or plan a field site visit, bring in resources, plan for ways to integrate project across curriculum areas, making connections and completing course assignments on art and literacy.

Phase 3, the culmination, involved preparing for how they might summarize the project work that the students completed during their 10 weeks. Culminating the project could take the form of a slide show, documentation board, or classroom book to help preservice teachers plan ways for sharing the project work with the classroom, parent, and school community.

In the following section we describe how we conducted a study with mentor teachers who used project work in their classrooms, seeking their experiences with project work and

their perspectives about their role facilitating project work with preservice teachers. We describe how the mentor teachers supported preservice teachers, the challenges both the mentor and preservice teachers faced, and their recommendations to our EC teacher education program to enhance the field experiences. The perspectives of preservice teachers about what they learned from their field experience using project work are shared. Our guiding questions were: (1) What are the experiences of mentor teachers in using project approach in their classrooms? (2) What is the role of the mentor teachers as preservice teachers implement project work in their classrooms? (3) What are benefits and challenges for preservice teachers using project work in early childhood classrooms?

Methodology

Participants

Five participants in the summer Project Approach PD agreed to serve as mentor teachers for 15 undergraduate preservice teachers enrolled in the early childhood methods course described above. The teachers taught in three different preschool programs: two programs based in public schools and one campus-based childcare program. The teachers were White, female, and had between 7 and 25 years of teaching experience with young children. All possessed master's degrees in early childhood education or early childhood special education. Two of the teachers worked for a school district that was engaged in PD on project-based learning to teachers in the elementary and upper grades.

Two teachers worked in a pre-k through grade 5 building in which a kindergarten classroom was involved in a pilot study implementing project-like investigations. One teacher worked for the campus childcare center in which the director (the second author) had advanced training in project work and encouraged her staff to use projects in their classroom curriculum.

Data Sources

There were two primary sources of data for this study: interviews with each of the mentor teachers and student reflections.

Interviews

Teachers who participated in the PD on project work and who had served as mentor teachers were contacted via email by the first author requesting their participation in the interviews. The first author interviewed each teacher after school for 30–45 minutes using a semi-structured interview protocol. The interviews were audio-recorded and immediately transcribed for content analysis. A semi-structured interview protocol was developed for the teacher interviews and can be found in Table 2.

Student Reflections

The preservice teachers were assigned to work with one of the five teachers, working in groups of approximately 3–4 students, to complete their field experience. All the preservice teachers were White, female, third-year students

Table 2 Mentor teacher interview protocol

Let's start by taking about your experiences since you participated in the summer workshop on Project Approach
Since the fall showcase, have you implemented any other projects?
If so, please briefly describe the projects
How did you use project documentation to assess child learning or GOLD progress monitoring?
What do you see as benefits to doing project work?
What are the challenges you encountered?
To what extent are children with diverse abilities involved in project work?
If you have not used project work with your students, why?
What barriers exist to implementing project work in your classroom?
What do you need to be able to do more project work in your classroom?
Now let's talk about your experience mentoring groups of early childhood teacher education students as they do project work in your classroom
What do you see as your role as the student planned and implemented a project in your classroom?
What do you see as benefits for students doing project approach as part of their undergraduate teacher preparation program?
What do you view as challenges to how the students have been using project approach in your classroom?
What support do you need from faculty to support students?
What recommendations do you have for the faculty to better prepare student for implementing project work in early childhood classrooms?
Is there anything else you would like to share?

majoring in early childhood education and only one had prior experience with project work. The instructors assigned each preservice teacher a Project Approach Final Paper in which they described what took place and reflected on their

experience during each phase of the project. The final paper questions (see Fig. 1) required each student to describe what happened in each phase of the project, and to reflect deeply on their experience in each phase, discussing both factors

Fig. 1 Project approach final assignment

Project Approach Final Paper

In this paper, be aware that you will not be graded on the *quality* of the project. Rather, you will be graded on the depth of your reflection on the project.

The story of the project Describe what happened in each phase of the project. Include details such as books and materials that you and/or your team provided, group times that you led, and examples of times when you followed a child's lead with regard to the project. Reflect on your experience in each phase, discussing both factors that were outside of your control and factors that you had some control over. Frame your responses within the constraints of this experience; that is, you could not have more time, access to construction sites, multiple experts at your fingertips, etc. Consider what you would do differently if you had the chance to do this with another group of children.	
Phase 1: Description What happened during this phase? What did you do to identify children's interests? How did you go about finding out what they already knew? How did you solicit their questions?	
Phase 1 Reflection Which parts of this phase were easy to do? Which parts were more difficult? Why do you think they were difficult? What went well? Why do you think it went well? What didn't go well? Why do you think it did not go as well as you had hoped it would? What do you think you could have done differently? What did you learn from this phase about doing projects?	
Phase 2 Description What happened during this phase?	
What resources did your team bring into the classroom? What experiences did you offer the children? What field work did you do and/or experts did you bring in?	
Phase 2 Reflection Which parts of this phase were easy to do? Which parts were more difficult? Why do you think they were difficult? What went well? Why do you think it went well? What didn't go well? Why do you think it did not go as well as you had hoped it would? What do you think you could have done differently? What did you learn from this phase about doing projects?	
Phase 3 Description What happened during this phase? If the project is not over yet, describe where it is now and what you would do if you were still there.	
Phase 3 Reflection Which parts of this phase were easy to do? Which parts were more difficult? Why do you think they were difficult? What went well? Why do you think it went well?	
What didn't go well? Why do you think it did not go as well as you had hoped it would? What do you think you could have done differently? What did you learn from this phase about doing projects?	
Overall Project Reflection What did you learn about yourself as a teacher from this experience?	

that were outside of their control and factors that they had some control over. In the final paper, they were asked to write a response to “What did you learn about yourself as a teacher from this experience?”.

Analysis

Following each interview, the interviews were transcribed and the lead author read and re-read the transcripts, coding the transcripts according to our guiding question and identifying themes that emerged across the interview data. An exploratory content analysis was conducted in which an initial set of themes was generated (Creswell, 2007). Each interview was content analyzed by the first and second author through an iterative process in which similar codes were collapsed and emerging themes were identified. The third author read the transcripts and reviewed the themes serving the role of peer de-briefer to confirm, clarify, and question the themes (Lincoln & Guba, 1985). In the final stage of our study, the students’ written responses were de-identified and content analyzed by the first and second author to identify and verify the extent and the ways in which the preservice teachers perceived the role of the mentor teachers.

Findings

Our analysis of the interviews and student reflections revealed both benefits and challenges of using project work. Our discussion is centered around our three guiding questions: (1) What are the experiences of mentor teachers in using project approach in their classrooms? (2) What is the role of the mentor teachers as preservice teachers implement project work in their classrooms? and (3) What are benefits and challenges for preservice teachers using project work in early childhood classrooms? We share quotes that exemplify themes we heard from several participants.

How Mentor Teachers Used Project Work

Four of the five mentor teachers used project work in their classrooms following the PD, and they reported that this was due to their principals recently setting an expectation that the preschool teachers do projects once or twice a year. Topics that the teachers identified for projects included farms, bees, veterinarians, worms, snow, and water movement. They found the projects were useful in assessing child learning, particularly in the areas of literacy, science, social skills, and persistence. The main benefit they identified was that following child interest resulted in a deeper level of engagement. Echoing the reflections of Alfonso (2017) about how

motivated and engaged her students were when implementing project work, one teacher explained:

I really feel the best thing is the kids are so engaged and so involved. I've seen kids who would never go to the art center but (during a project) made 10 observational drawings in one day of a snow blower and take those drawings and pictures and construct a snow blower. So just really using their interests and what they're interested in, to have them want to do things that they don't typically want to do.... And to them it's fun. I just think the engagement piece is the biggest thing.

Challenges identified by the mentor teachers were consistent with the findings of Blank et al. (2014). Teachers described not being able to plan ahead and the project going in unexpected directions, which resulted in them having to gather materials on short notice. Limited funding for transportation resulted in two teachers having to forego field work and instead locate experts to come into the classroom. One teacher did not do any project work on her own after the workshop, preferring to continue to use theme-based planning. She cited the stress and challenge of planning emergent curriculum, extra effort needed to get resources, and need for more training.

Roles of Mentor Teachers During Preservice Teacher Projects

The most frequently identified role that mentor teachers took was guiding preservice teachers in selecting topics that were worthwhile and appropriate for project work. Their knowledge of the children and their experience doing project work was invaluable to the preservice teachers who were still getting to know the children and had limited time in the classroom. Some of the mentor teachers shared their resources such as books, construction materials, and ideas for experts with the preservice teachers. Other mentor teachers limited their support to topic selection and left the rest to the students. Similar to findings of Maynard and colleagues (2014), we learned that support and freedom are both essential to early field experiences. In this study, encouragement and supportive feedback and willingness to answer questions were frequently cited by both the mentor teachers and preservice teachers. As Wastin and Han (2014) describe the implementation of project work during a field experience, “the importance of having a mentor teacher who is in support of this endeavor” (p. 10) is key. One mentor teacher described her support this way:

After choosing a project topic I gave them ways they could implement it into many different areas of the room and tie it in with our objectives. I have offered

books, games and observational drawing, manipulatives and suggested field work locations, expert visitors and ideas for activities.

The preservice teachers confirmed that mentor teachers taking an active role in keeping the project going and giving ideas for curriculum integration were helpful to their project success.

We used our mentor teacher as a resource. She was able to tell us whether or not our ideas would be something these students would be able to participate in. I learned that using people with more knowledge and experience is important.

Mentor teachers expressed uncertainty about their role and how much support or direction to give the students. The mentor teachers realized that many of the preservice teachers' schedules were busy and the field experience time in classroom was limited. Some of the preservice teachers had not developed a mode of communication that worked for all group members on the team. Because the mentor teachers were the constant in the classroom, they expressed a desire for more communication with the teacher educators and among the preservice teachers assigned to their classroom. The mentor teachers served a critical role in team communication and project continuity.

Benefits for Preservice Teachers

The most frequently cited benefit for the preservice teachers from doing project work was gaining experience communicating and collaborating with other adults including the mentor teacher and group members. As one preservice teacher wrote:

I learned that communication is KEY. Whether it is communication with other group members, teachers, or students it is important to always communicate your thoughts.

And another explained,

Another thing that I learned about teaching is that it is helpful to work on a 'team.' Many teachers today, within the same grades, work together each week on planning the curriculum. It was beneficial to me to collaborate with others to have multiple ideas and support from one another while working on the project approach. This showed me a glimpse of what teaching will be like for me.

Recognizing time constraints and identifying possible options for communicating via email, text, or a notebook is needed to promote ongoing communication between

preservice EC teachers and mentor teachers in field experiences (Maynard et al., 2014).

Facilitating child-initiated learning was identified by a few preservice teachers as a benefit to learning to do project work. These preservice teachers realized that developing the ability to follow child interests requires flexibility and perspective taking. One mentor teacher pointed out that the rich and engaging learning that took place during the project served as a management tool. Later in their program the preservice teachers would revisit the ideas that the best guidance is a good curriculum. Their experience with deeply engaging children in project work illustrated this common wisdom.

Challenges for Preservice Teachers

Two teams of preservice teachers struggled with an assignment to use visual webbing with children to help plan their possible topic as well as learn more about the children's questions. Webbing during phase 1 of project work requires considerable prompting (Wastin & Han, 2014) including asking open-ended questions, listening deeply, and summarizing main ideas, all of which were new skills for these preservice teachers. In their reflections, some described that the children were not focused on their questions, and it was the mentor teacher who helped them realize that the difficulty was likely due to them trying to web with children during a time in which the children were more interested in playing. How arrangement of the physical environment contributes to engagement was made clear to them when the mentor teacher recommended that they consider taking a small group of children to a quiet area to minimize distractions.

I thought webbing was the most difficult part of this phase. It was very hard to get questions out of the children. I did this during center time, so the children were very distracted and didn't really care to talk to me. It was like pulling teeth trying to get some of them to focus on me and what I was asking of them. ...This became very frustrating.

I think webbing was difficult because the children didn't care to talk because they were so interested in the brand-new center that was just set up. For the most part I think they just had too many distractions to focus on me or what I was asking.

Other preservice teachers who saw evidence of webbing by the mentor teachers in the classrooms for previous projects found it useful for planning with the other team members to consider possible directions the project might go, assessing children's prior knowledge, identifying misconceptions, and documenting new knowledge and understandings.

I learned that (anticipatory) webbing as a teacher and webbing with the students is really beneficial and gives you a starting point of what to focus on and what to do with the children to make the project, or any lesson, successful and tied in to the project that you are focusing on throughout. I think that I will definitely use this through my teaching career in learning about things to do with the children.

The preservice teachers faced a time crunch to implement all the phases of a project during their field experience. Most of the preservice teachers identified not having enough time to implement phase three, culmination of the project. In response, the teacher educators adapted the assignment to include written reflections on what they would have done if they had had enough time. Interestingly, two of the mentor teachers extended the preservice teachers' projects and planned a culminating experience.

Discussion

In this reflection on our practice of incorporating project work into an early childhood methods course, we focused on the experiences of the mentor teachers in facilitating project work with preservice teachers and children in early childhood classrooms. We viewed the mentor teachers as the infrastructure that was needed to redesign the field experience in which project work was part of the methods course. Here we reflect on the lessons we learned and what we see as implications for early childhood teacher educators who want to use project work as a way to promote inquiry learning with their preservice teachers.

Lessons Learned

The change to using project work, a child-initiated inquiry approach, during field experience led to uncertainty among the mentor teachers concerning their role. The mentor teachers were accustomed in the past to taking more of a hands-off role with the preservice teachers from this particular methods class. The mentor teachers recommended greater clarity about what they were expected to do. They also reported that they wanted a better sense of what the preservice teachers were learning in the university course, along with a timeline of when different aspects of the Project Approach were being addressed. Project work, like other inquiry approaches, requires support and communication between teacher educators and mentor teachers. We realized that the mentor teachers need support, both as teachers and learners (Whitebook & Bellm, 2013). A few mentor teachers wanted the teacher educators to visit the preschool classroom and observe the project work in action. These

findings suggest that early childhood teacher educators who want to introduce authentic experiences with project work must be prepared to devote more time to communication and consultation with the mentor teachers.

The preservice teacher teams struggled with finding ways to communicate with each other and the mentor teacher on a regular basis. Some relied on the mentor teacher to find out what took place while they were not in the classroom. Although it was expected that the preservice teachers would inform the teacher and their teammates about what took place and next steps, frequent breakdowns in communication occurred. One mentor teacher recommended the teams set up a google doc to manage their communication and project directions and findings. The consistent finding that preservice teachers struggle with communication in field experiences (Maynard et al., 2014) suggests that teacher educators be intentional and deliberate about their expectations concerning ongoing communication with mentor teachers and among team members.

Implications for Early Childhood Teacher Educators

The preservice teachers' discomfort with leading discussions with children and constructing webs suggests that teacher educators provide a variety of experiences to support child-initiated learning throughout the teacher education program. These might take the form of university classroom activities in which preservice teachers engage in role plays of leading discussions and then debrief about what they learned, observing mentor teachers using webbing during group discussions with children, or watching a video of an experienced teacher interacting with children and identifying contributing factors like questions asked, environmental arrangement, and other strategies for digging deeper into children's thinking (Helm, 2015).

Those early childhood teachers who take on the role of mentor teachers do so out of a sense of professional obligation and desire for growth, and those who do not cite a lack of confidence as a barrier (Walkington, 2005). Our experience with incorporating project work into preservice field experience reminded us that mentor teachers require support and ongoing communication from us on what is expected from them and from the preservice teachers. Strengthening connections to the university classroom can take a variety of forms including in-person classroom visits from teacher educators, web-based tools for team communication, and debriefing meetings between mentor teachers and preservice teachers and teacher educators using video conferencing tools.

Reflection Leads to Change

The question in our minds evolved over time from not whether project work could be used to prepare future teachers for facilitating child-initiated learning but at what point in the preservice experience would it be most feasible and effective. Interestingly, one of the mentor teachers asked if we considered moving project approach into the second early childhood methods course that preceded student teaching. In our preservice program we have two field experience opportunities prior to student teaching: the introductory methods course with a 15-hour field experience over 10 weeks and a pre-student teaching experience that is 40 hours over 10 weeks. Due to the frequently cited lack of time to complete all three phases of the project, we followed the mentor teacher's suggestion and began incorporating project work into the 40-hour field experience that accompanies the more advanced early childhood methods course. This change made it possible for project work to be addressed throughout our teacher education program. The 40-hour field experience allows time preservice teachers to determine children's interests and prior knowledge, more fully develop all three phases, and engage in authentic assessment tied to learning standards.

We found that project work enhanced our early childhood teacher education program. However, it required teacher educators to communicate more frequently and work in collaboration with both the mentor teachers who provided ongoing support and the preservice teachers, to ensure continuity across the phases of project work. La Paro (2016) used Bronfenbrenner's expanded system theory to consider how preservice teachers are influenced by the interactions they have with early childhood coursework, learning opportunities in the field experiences, and the expertise of mentor teachers.

Limitations and Future Directions

Our study has limitations because it was conducted with a small group of White teachers in an early childhood program leading to unified teacher licensure which may contribute to a lack of generalizability across EC teacher education programs. Our sample size was small and our participating mentor teachers worked in schools lacking in the richness of cultural and linguistic diversity.

Future steps for research are to examine the extent to which project work in an early childhood teacher education program carries over to preservice teacher's future classrooms, ways to enhance the inclusion experience preservice teachers plan for children with diverse abilities during project work, and whether preservice teachers working alone, in pairs, or a small group impact the benefits of implementing

project work. Identifying how higher education faculty can provide training for mentor teachers in order to enhance their professional development and strengthen partnerships to support the growth of preservice teachers are needed.

As we learned in this study of our practice, the role of the mentor teacher in facilitating the development of each phase of the project is essential. With collaborative support from teacher educators, mentor teachers are an important influence for preservice teachers who are developing skills in being part of a team and using projects as a curriculum approach for child-initiated learning.

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