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THOUGHTFUL EARLY CHILDHOOD TEACHERS:
DOCUMENTATION AS PART OF TEACHING

BY

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DISSERTATION

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Abstract

This study explores the contemporary realities of documentation in early childhood education. The purpose of this study is to provide early childhood teachers with a workable, systematic, and durable process for, approach to, and deep understanding of documentation. The ultimate goal of this study is to find ways to help early childhood teachers make documentation an integral part of teaching.

The study focused on how five early childhood in-service teachers carried out documentation in two different settings: a lab school, where documentation was viewed as a core instructional tool, and a public school, where teachers did documentation while challenged by limited resources and support. As an observer, helper, and facilitator in each setting, I conducted participant observation, observing the process of documentation as well as teachers' interactions with children, parents, and other teachers. Other data sources included in-depth interviews with the teachers about their experiences with documentation as well as the documents, records, and displays that teachers created during the study.

In the process of documentation, teachers recorded various aspects of their classrooms: students' learning, experiences, and growth, and their own teaching. They did so in many ways. Using these records, they created a variety of displays to share with children, parents, and visitors. For the teachers, the purpose of documentation was to explore students' growth, to help themselves think about their own teaching, and to share what they learned with children, parents, and others. They described the challenges they faced, particularly the lack of time. They expressed the need for someone to share their thoughts with. They also emphasized the importance of students' involvement in the process of documentation.

From my work with the teachers, I developed a model of documentation that sees documentation as the entire process and that comprises the following stages: (a) recording, (b) organizing records, (c) analyzing organized records, (d) creating public displays, and (e) sharing the displays both inward, that is, with students and other teachers, and outward, with parents, visitors, and others. The goal of this model is present documentation as a process that promotes teachers' collaborative inquiry, that encourages teachers to display a collage, rather than a montage, of both group and individual work, and that becomes an integral part of teaching. Making documentation central to teaching will require both teachers and teacher educators to explore deeply the collaborative nature of teaching and learning.

Implications for future research are discussed, particularly in international settings.

I dedicated this dissertation to my parents and my husband.

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Chapter 1

Introduction

My first encounter with pedagogical documentation was during my study tour to Reggio Emilia, Italy.

On each wall, documentation boards described students' experiences. . . . The documentation boards contained photos of the children's work and an explanation of them, which seemed to be similar to pamphlets or brochures from museums. Some of the children's works were put into frames or transparent acrylic boxes and displayed in front of the class. (Kang, 2007, p. 48)

The way Reggio teachers made children's learning visible was different from the way I, as a teacher, used to display children's work—putting all children's work on bulletin boards or walls. The purpose was just to show children's final work, not to share the process of their learning. No children's words, conversations or pictures, reflections, thoughts or intentions were shown related with the work. In the Reggio schools, however, documentation included with their visual evidence, with the aesthetical touches on, shared the story of their children's learning.

My interest in documentation developed while I taught in a Reggio- inspired school. A main reason I was intrigued by documentation strategies was that documentation itself represented a way for me, as a teacher, to share what I did and what my students learned. As a non-native-English-speaking teacher, I felt limited expressing my thoughts solely in English, but visual representations such as pictures, written reflections, or children's work became graphic languages to communicate my thoughts. While recording and creating displays, I had time to think about what I wanted to communicate about my lessons and my understanding of children with my colleague teachers, parents, and students. From this experience, I have come to understand that documentation, the visual stories of students' learning, can contribute to encouraging teachers' collaborative, communicative, and reflective practices and broaden their

understanding of the process of students' growth within the classroom. Documentation supports teachers' knowledge about their students and their teachings, continuously showing them how to be better teachers.

Purpose of the Study

Bruner (1996) argues that learning is an interactive/inter-subjective process. He noted that it is "in the nature of human cultures to form . . . communities of mutual learners" (p. 22). Bruner emphasizes that mental work should be "externalized," that is "a *record* of our mental efforts, one that is 'outside us' rather than vaguely 'in memory'" (p. 23). Externalization enables people to share and to think about their own thoughts. When teachers, children, and parents collaborate to externalize children's mental work, they create authentic learning environments for children. They move beyond constraints that are "arbitrary and artificially imposed on the children" (Vecchi, 1998, p. 142). When their mental work is externalized, children are able to see and share with others the fruits of their mental labor.

"Pedagogical documentation" has recently been attracting much attention in early childhood education (e.g., Dahlberg, Moss, & Pence, 2007; MacDonald, 2007b). This documentation has two focuses: content and process. Content is material to record. The material generally comprises written notes, observation charts, diaries, and other narrative forms as well as audiotapes, photographs, slides, and videotapes. Process is the use of the content to reflect upon pedagogical work by engaging teachers, children, and parents in dialogue, negotiation, and meaning making (Dahlberg, Moss, & Pence, 2007).

Pedagogical documentation for early childhood education is commonly used in Reggio-Emilia-inspired programs (e.g., Edwards, Gandini, & Forman, 1998), or programs using the Project Approach (e.g., Helm, Beneke, & Steinheimer, 2007; Katz & Chard, 2000). In reality,

few early childhood programs employ rich documentation. Most literature on pedagogical documentation has been limited to Reggio Emilia Approach or Project Approach based schools.

Few empirical studies on teachers' use of documentation were found. Research has focused on tools to record (e.g., photos or video-recording, journals), ways to create a form of documentation—mostly documentation boards or portfolios, and the effects of specific documentation strategies on teachers' or students' learning. This study explored broader aspects of documentation that classroom teachers do and use rather than one specific strategy. Most previous studies focused on student-teachers: Researchers asked participants to implement and use specific documentation strategies for the first time in their teaching and examined its effects. This research focused on in-service teachers who actually did documentation in their classrooms in order to explore real uses and the effects of documentation on teachers' teaching and students' learning.

I believe that the process of externalizing children's mental efforts through documentation can be an effective pedagogical tool that improves both teaching and learning. This study has two goals: (a) to critically explore the use of documentation in Reggio-Emilia inspired early childhood program well known for its use of documentation; and (b) to explore the efforts of two public-school teachers with limited access to the resources and support to integrate documentation into their classrooms. In other words, I am investigating the "ideal" and the "real." My research asks:

1. What does the process of documentation look like?
2. How does documentation influence teachers and students?
3. What factors contribute most to good documentation?

4. What supports and resources are most useful for developing effective documentation in teaching?

The research began in a university lab school, inspired by Reggio Emilia Approach, where documentation is an important instructional tool. This school provides systematic support for teachers, such as systems, resources, and technology tools to do documentation and opportunities to collaborate with teachers, parents, and the university community. The research then moved into two public-school classrooms (one kindergarten and one ESL first grade) where teachers did documentation with less systematic support from the school. My goal was to explore the process and effects of documentation as well as limitation of its use in “ideal” and “real” contexts.

By exploring the process of documentation in two different early childhood environments and its effects on teachers and students, I want to understand deeper meanings of documentation. My long-term goal research, begun in this study, is to facilitate documentation use and make documentation an essential part of teaching rather than an “add-on.”

Research in teacher education focuses on visible aspects of teaching, such as lecturing or conducting a lesson (Walsh, in preparation). Often neglected is the importance of “invisible” aspects of teaching because “good teaching requires a strong invisible base” (p. 4). An important element of this invisible base is the knowledge and skills necessary for exploring children’s mental work. Documentation holds great promise as a tool for developing teachers’ awareness of students’ learning and development, eventually creating mutual learning community.

This study explored both teachers’ practices as well as their struggles to implement the process. By focusing on actual process of documentation by in-service teachers, this study attempted to discuss working definition of documentation for early childhood teachers. My

ultimate goal is to show teacher educators how to help early childhood teachers understand the importance of “externalizing” both their students’ and their own mental work, and how to make this process of externalization, through documentation, an integral as part of their teaching.

Chapter 2

Literature Review

In this section, I review the literature on the meaning of “externalization” to create mutual learning community as an umbrella of pedagogical documentation. Then I will discuss the literature on the current situation of early childhood education that hinders creating such a learning environment. I review literature on well-known curricular approaches in early childhood education that emphasize collaborative learning environments: the Project Approach (PA) and the Reggio Emilia Approach. Based on the exemplary approaches to a mutual learning community, the literature review will look at various interpretations of pedagogical documentation and its various roles and possible contributions to creating mutual learning environments in early childhood education. Finally, I discuss the need for a broader perspective on pedagogical documentation.

Externalization

Bruner (1996) emphasized that “externalizing collaborative works into *oeuvres*¹ makes a community” (p. 22). A learning community allows “mutual sharing of knowledge and ideas, mutual aid in mastering material, division of labor and exchange of roles, opportunity to reflect on the group’s activities” (p. xv). He asserted two benefits of externalizing: (a) maintaining group solidarity by emphasizing overall group learning rather than individual growth and (b) making us thinking about our own thoughts.

First on the list obviously, is that collective *oeuvres* produce and sustain group solidarity. They help make a community . . . just as importantly, they promote a sense of the

¹ Borrowing a concept of a French cultural psychologist, Ignace Meyerson, “the main function of all collective cultural activity is to produce ‘works’—*oeuvres*, as he called them, works that, as it were, achieve an existence of their own. (p. 22)

division of labor that goes into producing a product. . . . [Externalizing mental work] emphasizes overall rather than individual progress; it produces “metacognition” on the class’s oeuvre and usually leads to lively discussion. Works and works-in-progress create shared and negotiable ways of thinking in a group. . . . I can see one other benefit from externalizing mental work into a more palpable oeuvre, one that we psychologists have tended to ignore. Externalization produces a *record* of our mental efforts, one that is “outside us” rather than vaguely “in memory.” . . . “It” relieves us in some measure from the always difficult task of ‘thinking about our own thoughts’ while often accomplishing the same end. ‘It’ embodies our thoughts and intentions in a form more accessible to reflective efforts. The process of thought and its product become interwoven . . . “thinking works its way into its products.” (p. 23)

By participating in the process of externalization, students can be more responsible for their own learning because group work promotes “pride, identity, and a sense of continuity to those who participate, however obliquely, in their making” (Bruner, 1996, p. 22).

Bruner (1996), however, asserted that in education, the notion of a community of mutual learning and its benefits (namely, benefits of externalizing) have been ignored so that “teaching is fitted into a mold in which a single, presumable omniscient teacher explicitly tells or shows presumably unknowing learners something they presumably know nothing about” (p. 20). In a mutual learning community, he emphasized teachers’ roles as “orchestrating the group work” to encourage students to share their thoughts and reflection. This process makes learning more public, negotiable, solitary and more reflective (Bruner, 1996).

Current Early Childhood Education

Why has creating a community of mutual learning been overlooked in early childhood education? In the following section, I discuss three main realities in early childhood education that hinder teachers from building mutual learning community in classes: (a) the dominant influence of Developmentally Appropriate Practices (DAP), (b) the increasing emphasis on academic readiness, and (c) the lack of early childhood teachers’ professionalism.

Developmentally Appropriate Practice (DAP). Since the National Association for Young Children published DAP guidelines (Bredekamp & Copple, 1997; Gestwicki, 2010), the guidelines have been widely applied in early childhood education. Fundamental assumptions of DAP, however, come from a strong belief in universal developmental stages according to age, which group children according to developmental stages.

Dahlberg, Moss and Pence (2001), however, criticized that this view of “child observation” limits teachers’ views on educating young children in that

the purpose of “child observation” is to assess children’s psychological development in relation to already predetermined categories produced from developmental psychology and which define what the normal child should be doing to a particular age. The focus in these observations is not children’s learning processes, but more on the idea of classifying and categorizing children in relation to a general schema of developmental levels and stages. . . . They can also be related to the construction of the early childhood institution as producer of child outcomes, including developmental progress. “Child observation” therefore is mainly about assessing whether a child is conforming to a set of standards. (p. 146)

Guidelines for developmentally appropriate practice are designed for average children and ignore the varied learning needs of young students, including the advanced ones (Morelock & Morrison, 1999). For example, some research found that early childhood teachers perceived that their advanced students as having already mastered skills/knowledge at age-appropriate developmental levels so that teachers tended to overlook the learning needs of those learners in their planning. Following only one curriculum for all students results in bored, frustrated students, who are uninspired to learn (George, 2005).

The issue of DAP is “the way teachers are encouraged to internalize DAP beliefs and practices and monitor their own progress” (Tobin, Hsueh, & Krasawa, 2009, p. 191). Teachers should think about the guidelines and use them as tools and instruments and “not dogmatically viewed as all or nothing thinking” (MacDonald, 2007a, p. 9).

Increasing emphasis on academic readiness. Early childhood education is commonly regarded as being minimally influenced by academic standards and accountability. In the past, early childhood education focused more on social-emotional development than on academic advancement, compared, for example, to secondary education (Barbour, 1992). Today, however, teachers in child care centers and preschool settings are being pressured to assure young children's academic skills such as reading and mathematics for school readiness (Anderson, 2007).

Tobin, Hsueh, and Karasawa (2009) made an interesting point about two dominant influences—DAP and NCLB (No Child Left Behind) in early childhood education.

NCLB is backed by the power of the government and by an administration that does not hesitate to wield its authority over teachers and others, it seems much more powerful than NAYEC, a professional organization whose accreditation is voluntary and that presents a gentle face. . . . NCLB's power is explicit, external, and threatening and therefore widely criticized and resisted by teachers of young children. . . . the power of DAP, in contrast, comes not just from accreditation pressures but also from the way teachers are encouraged to internalize DAP beliefs and practices and monitor their own progress. In contemporary American early childhood, NAEYC is functioning as the positive pole, and NCLB as the negative, with teachers, who are subject to both disciplinary regimes, in the middle. (pp. 190-191)

Since NCLB (2001) mandates that schools and districts annually test students from grades 3 to 8 in mathematics and reading (language arts), the pressure for academic readiness is being felt in early childhood education (e.g., Stipek & Byler, 2004). From a young age, children face academically focused on learning experiences with little attention to their readiness, interest, or learning profiles. Under this pressure of academic achievement, school success is described in terms of students' achievement on standardized tests (Hyun, 2003).

Ravitch (2010) asserted that the emphasis on standardized-testing and academic skills neglects the important roles of education for “broadening and deepening [students'] knowledge

of the world and their ability to understand what they have learned” (p. 110) such as a “student’s ability to seek alternative explanations, to raise questions, to pursue knowledge on his own, and to think differently” (p. 226). Bowman and Stott (1994) criticized the emphasis on academics and testing, claiming that this emphasis misleads schools in their assessment of students. They argue that the “the goal of measurement—to discover what makes an individual distinctive and valuable—is lost to one particular form of achievement” (p. 125). This emphasis makes teachers unable to see individual differences and to create responsive instruction; it moves education toward one-size-fits-all approach (Brazelton & Greenspan, 2007).

Lack of professionalism of teachers. Early childhood education is less formal than elementary and secondary education. There are various types of programs such as Head Starts, nursery schools, home-day care centers, state-funded programs for at-risk children, and private schools (e.g., church-affiliated and for profits). Teachers’ requirements vary from a high school diploma to a Bachelor degree in early childhood education and state teacher certification (Barbour, 1992). “Early childhood teachers have had a historic struggle for recognition of their professionalism, particularly if they teach in child care or less formal preschool settings” (Helterbran & Fennimore, 2004, p. 268).

Helterbran and Fennimore (2004) emphasized teacher inquiry for professional development, “true professionals take an active, self-directed, daily hand in their own learning—using self-inquiry to create important questions to be addressed and answered through professional development” (p. 270). Hyun (2003) reviewed studies that show that qualified teachers are described as professional individuals who create complex pedagogical knowledge to respond to the diversity of students, collaborate with other educators and family, and understand the authentic needs of students. She also asserts that these qualifications for pedagogically sound

practices are important for the teacher working with culturally diverse young children. Early childhood teachers inexperienced with teacher inquiry need support to manage new educational issues in their daily practices.

Professional development of teachers is shifting from training in child development theory and teaching methods toward forming professional communities for teachers—facilitating their engagement in sharing and discussing their practices with other teachers and learning from them (e.g., Darling-Hammond, Hammerness, Grossman, Rus, & Shulman, 2005; Manning-Morton, 2006; Perry, Komesaroff, & Kavanagh, 2002; Postholm, 2008). “A powerful, perhaps dominant, view of teaching holds that teaching is nothing more than the simple and efficient delivery of a package called curriculum. There is little need for adjustment, no need for dialogue.” (Ayers, 2010, p. 30) Kronberg, et al. (1997) argued that early childhood teachers should change their role from just implementing and teaching knowledge to reflective practices to recognize students’ ongoing needs by reflecting on the effectiveness of instruction and on their connection to students.

Curricular Approaches to Mutual Learning Communities

In spite of the barriers in early childhood education, many curricular approaches emphasize mutual learning. In this section, the literature on two well-known early childhood curriculum will be reviewed: the Project Approach and the Reggio Emilia Approach.

Project Approach. Kilpatrick (1918) first used the term “project” in education, describing a project as

the unifying idea that I sought was to be found in the conception of whole-hearted purposeful activity proceeding in a social environment It is to this purposeful act with the emphasis on the word purpose that I myself apply the term ‘project.’ (p. 320)

Katz and Chard (2000) use the term “project” in early childhood education, referring to an in depth study of a particular topic in flexible group forms.

The key feature of a project is that it is an investigation—a piece of research that involves children in seeking answers to questions they have formulated by themselves or in cooperation with their teacher and that arise as the investigation proceeds. (p. 2)

Project work consists of three phases of project work (Hertzog, 2007). In Phase 1, children exchange their personal experiences and memories about a topic and look into their current understandings, misunderstandings, and interests about that topic. Phase 2 is the inquiry phase. Children seek answers to their questions in many investigative ways —field trips, interviewing experts, observing the topic-related objects, home survey, representations of their findings, and data analysis. In Phase 3, students share their findings and new understandings with their parents, other students, or others in the community. Katz and Chard (2000) pointed out that discussion, field work, representation, investigation, and display are important strategic features of project work. Vartuli and Rohs (2006) discussed the characteristics of projects: small group or individual, in-depth inquiry, finding answers to questions and problem-solving guiding the flow of learning, first-hand experiences, undetermined time frame, open-ended outcome, assessment of learning and growth through documentation, and child/teacher directed learning.

One of the biggest contributions of the Project Approach to the field of early childhood education is its emphasis on promoting young students’ inquiry throughout their investigations. This inquiry-based project work in the early years provokes “cognitive conflict” and a “dialectic” to challenge young children. Cognitive conflict stimulates children with intellectual challenges and produces excitement about ideas. The dialectic encourages children to debate ideas during the process of raising questions and examining possible answers (Feinburg & Mindess, 1994).

The value of the Project Approach in the early years is to help early childhood teachers provide opportunities for students to apply skills, to motivate their learning, to choose a variety of activities, and to investigate their answers to questions in various ways. Hertzog (2005) showed that the teachers perceived the benefit of Project Approach was that they changed their views of their African American students to see their potential talents, and they began to have higher expectations for all of their students. The teachers became aware of and responsive to not only children's basic skills but also their unique talents and interests.

Reggio Emilia Approach. The schools in the small municipality, Reggio Emilia, have drawn world-wide attention, especially from early childhood education. The Reggio Emilia approach was influenced by many educators, philosophers, and psychologists such as John Dewey, Lev Vygotsky, Erik Erikson, Urie Bronfenbrenner, Jean Piaget, Jerome Kagan, and Howard Gardner (Malaguzzi, 1998). The approach of the Reggio Emilia schools, implementing the theories in practice, is considered a best practice for challenging all young children in early childhood education.

When Tobin and his research crew revisited American preschools in 2002 for a sequel to *Preschool in Three Cultures* (Tobin, Wu, & Davidson, 1989), they found that Reggio Emilia was frequently mentioned by American preschool teachers and directors.

In our interviews across the US, when asked about what has changed the most since 1985, directors and teachers often cited the influence of "Reggio," as they almost always call it. When pressed, they specifically mentioned Reggio's emphasis on the arts and esthetics and on the documentation of children's learning. (Tobin, Hsueh, & Krasawa, 2009, p. 232)

This section focuses on two practices in this approach: diverse materials as "hundred languages" and environments as a third teacher, including pedagogical documentation.

Diverse materials as the hundred languages. “The hundred languages” is a representative metaphor of the Reggio Emilia approach, referring to graphic representations or symbolic languages (Nimmo, 1998). The purpose of “hundred languages” is communication and interactions of children with their peers, adults, materials and environments, providing many first-hand opportunities for children to use various media, equipment, and tools. Malaguzzi (1998) explained, “graphic representation is a tool of communication much simpler and clearer than words . . . symbols have profound relations with emotions, feelings, with many things that cannot be quantified through observation” (p. 92).

The materials are all open-ended, for example, natural materials, recycled materials, or formless objects to provoke children to express and develop creativity and other high levels of thinking (e.g., Curtis & Carter, 2003). Reggio teachers stimulate children’s activity with specific purposes and objectives in mind for addressing children’s interests (Feinburg & Mindess, 1994).

Environment as a third teacher. The environment in Reggio schools is very aesthetic—not only beautiful but also communicative. The environment consists of collaborative works by children and teachers. The founder of Reggio schools, Malaguzzi (1998), said, “The walls of our preprimary schools speak and document. The walls are used as spaces for temporary and permanent exhibits of what the children and the adults make come to life” (p. 3). Gandini (2005) explained the benefit of an aesthetic environment.

It [aesthetic thought] uses expressivity to bring a language of relationships into the activities that take place . . . Expressivity is a process that places things in relationships...increasing one’s own knowledge, learning different languages, continuing to give a voice to one’s own expressivity means keeping a high level of relational attention. (p. 139)

The aesthetic and communicative environments express the kinds of learning experiences children enjoy, the ideas, feelings, and interests children engage in their learning, and the teachers' thought processes that create activities.

Along with the aesthetic aspect, the most important part of their environments is documentation. The Reggio Emilia way of documentation is well-known. I will discuss the key aspects of documentation in the Reggio Emilia Approach in a later section.

Pedagogical Documentation As a Way to Externalize

Pedagogical documentation strategies can be an effective tool to facilitate teachers' better understanding of their young students and their own practices, eventually to create a mutual learning community. Recently, documentation has received much attention from early childhood teachers. Katz and Chard (1996) discussed the contribution of documentation to the quality of early childhood education and the enhancement of children's learning by taking children's ideas and work seriously, including them in planning, encouraging parent appreciation and participation, involving teachers in research and process awareness, and making children's learning visible.

Pedagogical documentation. In early childhood education, teachers' own understanding of individual children's growth, strengths, needs, interests, and experiences can inform curriculum design, the learning environment, and teacher-student interaction (Bredekamp & Copple, 1997). Teachers' understanding can provide teachers with a starting point for adjusting their practices based on a deeper understanding of children's progress, rather than simply assessing children's learning.

Dahlberg, Moss, and Pence (2007) call this practice "pedagogical documentation," referring to both *process* and *content* in their description.

“Pedagogical documentation” as content is material which records what the children are saying and doing, the work of the children, and how the pedagogue relates to the children and their work This process involves the use of that material as a means to reflect upon the pedagogical work That reflection will be done by . . . with others [other teachers, children, and parents]. (p. 148)

Documentation strategies used in Reggio Emilia schools are good examples of pedagogical documentation. With a “listening” metaphor for the process of observation and documentation, the main role of teachers in Reggio schools is “listening” to each other and providing an environment where this listening occurs (Rinaldi, 1998). Kroeger and Cardy (2006) assert that listening helps teachers be deeply aware and avoid quick judgment and prejudice; it elicits questioning instead of answering, diversity and differences, and values others’ points of view.

Materials consist of written notes, observation charts, diaries and other narrative forms as well as audiotapes, photographs, slides and videotape. Documentation is not just the final report or collection of children’s works. The systematically collected, organized, and displayed documentations invite dialogue among teachers, parents, and children in the process of the project (Rinaldi, 1998). That is, “the concept of practice connotes doing, but not just doing in and of itself. It is doing in a historical and social context that gives structure and meaning to what we do” (Wenger, 1998, p. 47). In Reggio schools, the structure and meanings are made collaboratively by teachers, children, parents, and even people in the community and “construct theories and hypotheses that are not arbitrary and artificially imposed on the children” (Rinaldi, 1998, p. 142).

Importance of teachers’ reflection. Pedagogical documentation encourages reflective practice (Dahlberg, Moss, & Pence, 2007). Calderhead (1992) described a reflective teacher as

one who is able to analyze their own practice and the context in which it occurs; the reflective teacher is expected to be able to stand back from their own teaching, evaluate their situation and take responsibility for their own future action. (p. 141)

Bowman and Stott (1994) emphasized the constant effort required for the process of reflection about teaching, about the nature of teaching and learning contexts, and about teachers themselves.

Teachers need to consider how what they do affects children and why, and how what children do affects them. They must accept and reject ideas on the basis of thoughtful inquiry and not just on the basis of superficial opinion, private belief, or standard practices. (p. 129)

Weinbaum et al. (2004) discussed how reflection can help teachers avoid making an immediate judgment about data (student work or their own work) and take the time to consider what is there. Postholm (2008) showed that the process of reflection provided teachers with a place for tips and exchange of their practice experiences and validated their teachings so that they felt they were competent. By reflecting, teachers can be facilitators of learning to reconstruct the learning environment and to promote students' more active involvement in their own learning process (Kronberg et al., 1997). In Reggio schools, visualizing the children's learning process provides teachers with an opportunity for sharing reflections on their own practices with other colleagues, and for creating knowledge of their own students and practices.

Because documentation can be kept and returned to . . . active pedagogues will be able to build on and utilize well-established experiences and simultaneously take part in constructing new theories concerning children's learning and knowledge construction, with documentation as a base. . . . This presupposes, however, that pedagogues engage in continuous self-reflection, something which poses high requirements on their professionalization, but something which also can function as a challenge and inspiration for a deeper engagement. (Dahlberg, Moss, & Pence, pp. 153-154)

Documentation for communities of mutual learners. Bruner (1996) mentioned one of the benefits of externalizing was to create a mutual learning community² where group work leads to lively discussion as a sharing and negotiating. Dahlberg, Moss, and Pence (2007) emphasized pedagogical documentation as a learning and communication. They claimed that visualizing is a starting point for reconstructing pedagogical work in that it “can provide a critical means for pedagogues, and others, to deepen their understanding of pedagogical work and provide a basis, if required, for making judgments and seeking some degree of agreement on these judgments” (p. 153). They also asserted that pedagogical documentation is a process of communication. The process of pedagogical documentation enables many voices—of children, teachers, parents, administrators, politicians and others—to be heard and analyzed. It becomes a way to make meanings of the multiplicity of perspectives.

The Reggio-Emilia way of documenting is an example of externalizing children’s learning to lead to mutual learning among teachers, children, parents and community. “[Documentation] makes timely and visible the interweaving of actions of the adults and of the children; it improves the quality of communication and interaction. It is in fact a process of reciprocal learning” (Rinaldi, 1998, p. 120). Thus, documentation provides understanding of children’s minds by revealing the origins of ideas and theories, hypotheses, feelings, experiments, notions of cause and effect, and other cognitive processes.

Mutual learning with their colleagues. Rinaldi (1998) argued that in spite of rich data based on various sources of documentation, teachers’ understanding of their students are partial, and their interpretation is based on their subjective reflections. Discussion with colleague

² For the direct quotation, see p. 7.

teachers is crucial in order to construct meaningful understanding. Weinbaum et al. (2004)

described collaborative efforts as

the process by which colleagues gather in groups to pursue, over time, the questions about teaching and learning that the group members identify as important. Groups develop their understanding of an issue through framing a question, identifying artifacts or evidence that help respond to it, sharing perspectives on the evidence, reflecting on the partial or provisional answers that emerge, and revising the question in light of experiences and discussion. (pp. 2-3)

Collaborative inquiry provides opportunities to foster adult learning and to engage in educational research (e.g., Bray, 2002; Goodnough, 2005). Postholm (2008) showed that the process of reflection through documentation motivated the teachers' self-reflection and produced discussion and debate among colleagues. Group discussions serve to modify, at times radically, the teacher's thoughts and hypotheses about children and their interactions with them (Rinaldi, 1998).

Mutual learning with children. Children can express their ideas and thoughts about an issue and conduct projects with the help of teachers. With documentation, young investigators' words, artifacts, and photos of activities can be externalized. Rinaldi (1998) claimed that "documentation supports the children's memory, offering them the opportunity to retrace their own processes, to find confirmation of negation, and to self-correct" (p. 122). By revisiting their own works, children can rethink and reflect on what they did. From the children's experience, teachers can obtain a deeper understanding of the children and their own ways of interacting with young children.

Through documentation or participating in doing documentation, children express what they know as well as how and what they think about their thinking. By thinking about their thoughts individually or in a group, they can appreciate their own growth through collaborative learning, evaluate their own learning and group work, and contribute new understanding or

strategies to the project work (Catapano, 2005; Katz & Chard, 2000). Catapano (2005) asserted that children's projects can provide teachers with meaningful and on-going professional development by allowing the teachers to use observation, documentation, reflection, and experimentation to provide a rich learning environment for the children.

Documentation can externalize children's thoughts, ideas, and feelings as a learning process and a tool to facilitate their reflection and inquiry on their learning (Helm, Beneke, & Steinheimer, 2007). Recent research showed that recording tools can be used for children's reflection on their own learning (e.g., Clements & Sarama, 2003; Forman, 1999; Goldhaber, 2007; Good, 2005; Schiller & Tillett, 2004). Hong and Broderick (2003) found that instant video revisiting of social conflict situations in their class allowed them construct knowledge about interpersonal relations and develop their own reasons for solving problems.

Some research found that children can be involved in recording their own learning process using diverse technologies. Ching, Wang, Shih, and Kedem (2006) found that children's participation in making digital photography and journals prompted the children to think deeply about their classroom. The children also made meaning of detailed reflections on their visual creations. By representing their learning experiences, children participated in making documentation, reflection, and visual literacy. Through this learning process, children empowered themselves. Wang, Kedem, and Hertzog (2004) found that students-created PowerPoint presentation helped (a) young students to articulate their thinking about their learning experiences and communicate their ideas, (b) some students who did not express in other ways to reveal their thoughts, (c) the teachers to understand and assess children's progress, (d) the students, parents, teachers to form a shared understanding of meanings making , and (e) the students to learn in other areas such as literacy and computer literacy. Those children's words

and ideas can provide support for teachers to develop reciprocal strategies with both teachers and children.

Mutual learning with parents. Documentation can provide important opportunities for parents to see children's learning experiences and the part of children's lives that they do not usually see at home. It invites parents to share what they know about their children and to become aware of their role and identity as parents (Rinaldi, 1998). Some research shows that documentation helped parents understand their children better (e.g., Boardman, 2007; Buldu, 2010; MacDonald, 2007b). Buldu (2010) found that the parents reported that documentation boards increased their awareness of their children's learning experiences at school, enhanced dialogue with the children and teachers, and helped them learn about effective practices and ways to support children at home.

Through documentation children can share their experience or knowledge with their parents by revisiting through what is displayed on the walls throughout the entire school. Parents gain a sense of the learning experiences provided in the school and of what their children are interested in and can do. Gandini (2005) discussed the process.

The children participate in the selection. The teachers use some observational tools to collect the criteria the children use in order to understand the process of self-evaluation that accompanies and motivates the children's choices. At the same time, the teachers share the emerging processes with the parents and transfer various parts into a digital format, preparing a digital archive that the children can consult. (p. 136)

Mutual learning in the community. Reggio schools' efforts to bring the work of the children out into the community has led to municipal financial support. Their international exhibit tour, "The Hundred Languages of Children" earned the school international attention (Helm & Helm, 2006). The Reggio Emilia approach itself is an example of how documentation can be shared outside of the school. "Sharing documentation is in fact making visible the culture

of childhood both inside and outside the school to become a participant in a true act of exchange and democracy” (Rinaldi, 1998, p. 122). Helm and Helm (2006) explained that using mass news media such as newspapers, magazines, radio and television is as a way to being connected with a community.

The roles of documentation. I will discuss four purposes of documentation for teachers drawn from the literature: assessment, instructional guidance, teacher professional development, and knowledge generation.

Authentic assessment. Documentation can be effective evidence of children’ learning, understanding, interest, and strength. Documentation as authentic assessment is convincing (providing evidence), powerful (engaging, memorable, and even inspiring), and convenient (easy to obtain, interpret, and explain) (Helm & Helm, 2006).

During the early years, children learn best through active and meaningful experiences involving interaction with others and environments. Hands-on experiences are hard to assess, and traditional assessment methods based on developmental norms of young children cannot gauge their critical thinking, creativity, problem-solving skills, or the motivation promoted by project-based/inquiry-based learning situations (Helm & Gronlund, 2000). Traditional assessment focuses on the outcomes of students’ development. Such restricted assessment tools cannot show process of students’ learning and discover children’s potential talents. The results of traditional assessment methods do not help teachers to modify their instruction to match children’s diverse learning needs (Helm & Gronlund, 2000).

Some research regards documentation as formative assessment (e.g., Boardman, 2007; Buldu, 2010; Hertzog, 2005; MacDonald, 2007b). MacDonald (2007b) found that teachers and parents perceived pedagogical documentation as a useful way to develop a deeper understanding

of the children's strengths, interests, and curiosities beyond what is traditionally assessed. The use of pedagogical documentation drew attention to the child's learning processes.

Teacher instructional guide. Pedagogical documentation not only helps teachers' understanding of children, but it also modifies and adjusts their practices based on their understanding of their particular children's diverse needs. MacDonald (2007b) suggested that understanding children during the learning process can produce meaningful follow-up lessons and can become an alternative to the standardized assessment tools used in early childhood education. Buldu (2010) found that the teachers reported that pedagogical documentation helped them decide where students' learning should go next and what kinds of materials are needed.

Teacher professional development. Studies show that pedagogical documentation could be a tool for teachers' professional development (e.g., Buldu, 2010; Goldhaber, 2007; Hong & Trepanier-Street, 2004). Goldhaber and Smith (1997) showed that the process of documentation promotes teachers' professional development by establishing more collaborative relationships with children and parents, which in turn results in their becoming more reflective teachers. Teachers found themselves observing children with purpose, creating a community of inquiry among children and teachers, and promoting collaborative communication among themselves, children, and parents. Kroeger and Cardy (2006) also noted that although pre-service teachers faced some limitations and challenges in doing documentation, they became more willing to create and trust the co-constructed, investigative, and evolving moments as starting, middle, and ending places for understanding their students as well as to allow themselves to engage with children, plan for them, and ask further questions.

Contributing to knowledge generation. Edwards (1998) described pedagogical documentation as "conducting systematic research on daily classroom work for purposes of

curriculum planning, teacher development, and professional dissemination” (p. 180). As discussed above, through the process of documentation, teachers learn, discuss, reflect, share, and negotiate with children, other colleagues, parents or other adults in the community. This learning process serves as a starting point for the reconstruction of the pedagogical task. Constant inquiry about the process enables teachers to make judgments and attain some degree of agreement on their decisions (Dahlberg, Moss, & Pence, 2007). Documentation enables teachers to be producers of knowledge about curriculum and learning rather than consumers of knowledge “arbitrary and artificially imposed on the children” (Vecchi, 1998, p. 142).

Teachers can share their new understanding of children and practices. Hong and Trepanier-Street (2004) suggested how technological documentation can be used to extend learning and communication to the professional community. Documentation panels and classroom websites can be shared with the early childhood community at conferences. The collected documentation panels can be valuable sources to study children’s development and teacher’s practices. The created knowledge based on this process can provide others with “a window on a child’s development and a window on a learning experience as a whole” (Helm, Beneke, & Steinheimer, 2007, p. 81).

Need Broader Perspectives on Pedagogical Documentation

The literature that I reviewed was mostly theoretical discussions of pedagogical documentation made by scholars (e.g., Dahlberg, Moss, & Pence) and discussions made by those who are involved in the Project Approach (e.g., Katz and Helm) or in the Reggio Emilia Approach (e.g., Edwards, Forman and Fyfe, Malaguzzi, and Rinaldi). From these scholars, I learned that documentation can take various forms, and should emphasize the process and its use for many purposes.

In spite of its potential to contribute to early childhood education, little empirical research was found on teachers' actual use of and thoughts about documentation and its effectiveness on teaching and learning in classrooms. It seems that the limited research did not look at the whole process of documentation. Research focused on specific tools to record (e.g., photos or video-recording, journals) and ways to create a form of documentation. The role of documentation seemed to focus on individual students' learning and development as authentic assessment.

Documentation versus portfolios. The literature shows that documentation in early childhood education has been used mainly for the purpose of student assessment. For example, the portfolio is the most common documentation for early childhood teachers, and is typically used to assess individual children's progress. "Portfolios are a systematic and organized collection of children's work and can include writing samples, art work, running records of children's behavior, and samples of children's problem solving skills" (Gullo, 1994, p. 82) to monitor students' growth in specific domains and to modify teachers' teaching. Gullo (1994) described three types of portfolios commonly used in early childhood education: "work-in-progress" portfolios containing stories or artwork that the students are working on; a "current year" portfolio containing artifacts that teachers choose to represent certain criteria; "permanent portfolios" containing teacher-selected-artifacts of students for preparing next lessons.

Portfolios have been widely used; this, however, focuses only on assessing individual students' growth and the modification of teaching to help his/her development. "Pedagogical documentation by contrast is mainly about trying to see and understand what is going on in the pedagogical work and what the child is capable of without any predetermined framework of expectations and norms" (Dahlberg, Moss, & Pence, 2007, p. 146). Forman and Fyfe (1998) differentiated portfolios and documentation.

Documentation may be filed in a portfolio and later browsed as a collection. However, strictly speaking, documentation is not a form of assessment of individual progress, but rather a form of explaining, to the constituents of the school, the depth of the children's learning and the educational rationale of activities. (p. 241)

They continued explaining the difference between a portfolio and documentation by emphasizing documentation is for thinking about group learning.

Documentation, as we mean it here, is more focused on children than on a child. Even when a child is featured in documentation, the intent is to have the viewer treat this child as a representative child. . . . Documentation tries to raise questions about children's thinking and teaching strategies rather than to mark the progress of all individual children. (Forman & Fyfe, 1998 p. 246)

This study explored various aspects of documentation—portfolios as part of documentation—that the teachers intended to use in their classrooms. The basic concern of this study is that documentation focuses on representing group learning rather than individual growth.

Documentation as a part versus as a whole. Most of the research shows that researchers have focused on one recording system. For example, by looking at student work, teachers in early childhood education mostly use portfolios—collections of students' work—to understand their student's progress and to plan instruction (e.g., Coleman, 1994; Mills, 1996).

Along with new developments in technology, ways of documenting in classrooms have become diverse. A body of literature discussed using documentation strategies by using technological devices such as photographs, video-recording, or Powerpoint (Ching, Wang, Shih, & Kedem, 2006; Forman, 1999; Hong & Broderick, 2003; Wang, Kinzie, McGuire, & Pan, 2010). All of these studies show that any form of recording can facilitate students' learning as well as teachers' practice.

Various forms of records can be presented in a classroom. This study explored extensively how the teachers made a variety of forms of displays with different recording

systems and how they used the records. What to record and how to record are important questions for pedagogical documentation. This study, however, emphasized that recording is part of documentation and various recording systems should be explored along with diverse meaningful purposes. This study explored documentation as not only a matter of recording systems, but considered more process—teacher’s intentions while making and using various systems and incorporating the process of documentation into their teaching.

Documentation by teachers versus documentation for researchers. Most of the studies on documentation focused on student teachers (as a part of their practicum requirements) and researchers asked the participants (usually pre-service teachers) to use one record system such as video-recording or a documentation panel for the first time. Researchers explored how the students teachers thought about these documentation processes and considered implications for educational research.

This kind of research does not show the reality of the documentation process and its actual use in classrooms. The research put an emphasis on exploring documentation in early childhood classrooms where the teachers are actually using documentation strategies in their own classrooms. When researchers go into a context (classroom setting), they ask participant teachers to use or apply what the researchers want to see in their classroom. When the study is over, the teachers might or might not continue these methods or practices. MacDonald (2007b), for example, found that a year after the researcher introduced documentation to five kindergarten teachers, she found that only one teacher continued using documentation strategies in the class. The purpose of this study is to explore in-service teachers’ actual use of documentation and to think about how to help them use documentation process as part of teaching.

Pedagogical documentation is not simply a record or collection of student work. Pedagogical documentation is process and has broader meanings, uses, and purposes for meaningful educational environments, which need to be further researched. As a holistic and continuous process, pedagogical documentation should be explored further to get in-depth meaning and practical ways to serve various roles and purposes to create mutual learning community. The purpose of this study is to explore the deeper meanings of documentation for early childhood teachers and their actual uses of it for various purposes in their teaching.

Summary

Pedagogical documentation had gained attention as a way to externalize young children's work. The Reggio Emilia way of documentation is an example of pedagogical documentation that contributes to establishing a community of mutual learners. Documentation plays various roles as an authentic assessment, a teachers' instruction guide, a means to professional development, and a method for contributing to knowledge production.

In current early childhood education, due to increasing academic pressure, Developmentally Appropriate Practice, and a lack of teachers' professionalism, documentation has been narrowly defined as portfolios used to assess an individual child's growth. The literature on teachers' use of documentation was mostly technical concepts and discussion made by scholars, not practical understanding from empirical studies. The literature has also focused on specific skills of recording or documenting students' work and not teachers' actual use. Exploring in-service teachers' experiential process of documentation will help increase an understanding of the broader perspectives of documentation.

Chapter 3

Research Design

This study took place at two sites: Washington Primary School, a university-affiliated K/1 classroom, and Lincoln elementary school, a kindergarten and an ESL first grade classroom at a public school.

Washington Primary School

Washington Primary School has two classes: a pre-K classroom for 3 to 4 year olds and a K/1 classroom for 5 to 7 year olds. In this study, I focused on the K/1 classroom. The class had four teachers (including a student teacher) and 25 children: a head teacher, Mary and two assistant teachers, Holly (morning TA), and Lauren (afternoon TA). Washington Primary School is a university laboratory school where teachers are supported in the use of documentation.

The instructional approach is based on the Project Approach (Katz & Chard, 2000) and Reggio Emilia Approach (Edwards, Gandini, & Forman, 1998). Both approaches stress emergent curriculum, project work, representational development, collaboration among teachers as researchers, documentation, and the environment as a third teacher. This school has systematic methods and tools for documenting children's learning. Documentation, which is an important tool for instruction in this school, is described as follows:

Teachers document to share the story of a child's learning through photos, transcription of spoken word, and authentic artifacts and varied media. Rather than a traditional 'report card' and arbitrary rating system, student progress documenting thinking and re-thinking is shared through an on-going story of documentation. (Washington Primary School, 2007)

The school is located in the lower level of a university building; there is space for displaying documentation in the classrooms and in hallways. Teachers have access to computers (with software to edit records), computers, digital cameras, video cameras, color printers, and

documentation boards. Teachers meet weekly, and parent–teacher conferences are held once a semester. At the end of a project, the school hosts a culminating event to share children’s project work with parents, families, and people from the community.

Visitors to the classrooms pass through hallways rich in visual displays. As I descended the stairs to the lower level, I saw four boards hung low at children’s eye level. These wooden boards (approximately 100cm x 230cm) were covered with white cloth and displayed students’ work. One board showed students’ self-portraits, pictures of students looking at themselves in a mirror, and some of their written words. As I turned to the left, I saw 11 documentation boards hung high at adults’ eye level on two sides of walls. These boards were framed with clear plastic covers. The documentation boards showed previous projects from the pre-K and K/1 classrooms. The last two boards were located on the wall between the two classrooms. This board displayed family pictures and a previous project.

The K/1 class consists of three classrooms: two large classrooms and one small room. In the main classroom, one wall showed the current project, the project webs, children’s drawings, and questions. Paintings and drawings were hung on the other walls. Some art pieces were framed. The middle room, called the library, was filled with books. In this room, children’s artwork and documentation boards from the previous semester were displayed. Additionally, a Venn diagram was on the door. Each word on the Venn diagram was handwritten by an adult on Post-it notes. The current words were “orpheus” and “museum.” In the back classroom, which was the same size as the main room, a big black board (100cm x 140cm) and a white board (75cm x 100cm) were hung on one wall. The black board was empty, but the white board contained the day’s announcements for parents. On the other walls, four more documentation boards were hung at adult eye levels. The documentation boards displayed previous projects.

Four computers were sitting on a desk, and one of them was a teacher's computer connected to the two printers in the front of the classroom.

The K/1 classroom runs one project per semester. The topic of the semester from this research was "museum." The class had three small study-groups that explored the following questions: (a) What can we learn about interactive art; (b) what can we learn about people who lived in other times; and (c) what can we learn about art museums?

The class schedule was as follows:

8:20-8:40 Greeting and Check-in/1st activity choices
8:30-9:40 Activity and project time
9:00-9:10 Morning meeting
9:40-10:00 Whole group meeting (activity follow-up, project discussion, literacy)
10:00-10:35 Literacy small group instruction
10:35-11:00 Outdoor play
11:00-11:30 Extended literacy: Journal writing or writer's workshop
11:30-12:30 Lunch/outdoor play
12:30-12:50 Shared reading and whole group meeting
12:50-1:10 Independent/buddy reading, individualized reading instruction and project discussion
1:10-1:40 Math small group instruction
1:40-2:20 Activity/project time
2:20-2:30 Whole group meeting, performing arts, and wrap-up group meeting
2:30 Dismissal

Lincoln Elementary School

I conducted the research here in two classrooms in a school located in a university town: a kindergarten classroom and an ESL first grade classroom.

Kindergarten. Lynn is experienced with documentation. She showed her documentation boards to teachers at the workshop in a local school district. The workshop focused on differentiated instruction for literacy for early childhood teachers. At the workshop, she briefly explained video recording students' reading, and she shared the documentation boards.

In the hallway, the wall outside the classroom was empty the first time I visited. As I walked into the classroom and turned to my left, worksheets on which the students had practiced tracing their names were displayed. When I informally visited her classroom before the research started, a documentation board with photos and children's words about students' social interactions was displayed on the back of a shelf in the classroom. No documentation board was displayed in the classroom the first time I visited for the research. On the wall facing the large group area, three posters made by teachers explained three classroom rules: "read to self-independence," "read with a friend," and "write." A bulletin board to the left of the group meeting area displayed a calendar, sight word flash cards, a poster of a poem, and other pre-made posters. The class schedule was as follows:

8:00-8:10 Arrive to school
8:10 Attendance, lunch choice and independent reading
8:30 ESL students leave
8:30 Phonemic awareness, read aloud, writing
9:30 Beginning reading
10:15 Writing
10:45-12:00 Recess and lunch
12:00 Bathroom/rest
12:35 Fine arts/ Library
1:10 Math
2:15-2:55 Snack & Get ready
2:55 Dismiss

The ESL first-grade class. When I walked into Tricia's classroom, I saw that all of the walls were covered with students' work, mostly writing and drawing. There were two white boards: one (100cm x 165cm) in a large group area and the other (100cm x 200cm) in an individual work area. These two boards contained handwritten words by the teacher along with the students' writing sheets. The students' words on the writing sheets replicated the teacher's

written words. At 12 p.m., the ESL students came into the classroom. The ESL class schedule was as follows:

12:00 Circle time as a group a theme
12:00-12:20 Writing words together
12:20-1:00 Journal writing /individual work on themes
1:00-1:40 Guided reading a book on the computer / computer
1:40-2:00 Literacy center time (and TF reading with a group)
2:00-2:30 Table project; read a loud
2:30 Dismissal

Participants

In this study, I focused on the process of documentation by teachers in their classrooms. All persons involved in the teachers' classrooms, however, were also observed to include students, parents, and other teachers (e.g., assistant teachers and student teachers).

Recruiting process. The focus of this research was on teachers. First, I recruited the teachers and then non-focal teachers, children, and parents from each classroom.

Washington Primary School. The participants were one head teacher and two assistant teachers. Upon approval from the director, I met with the K/1 teachers to explain the study and to ask if they would participate. Once teachers agreed to participate in the study, the written consent forms for children were sent home for signatures from parents. The first return rate was not sufficient, so I asked the school secretary to send a reminder e-mail to the parents. In total, I received 15 out of 25 approved parent consent letters for their children's participation.

Lincoln Elementary School. Initially, I planned to facilitate Lynn's preparation for a workshop for early childhood teachers in a local school district. I had been informed that the part of workshop would be about documentation for early childhood teachers; the workshop, however, turned out to focus on differentiated instruction for literacy in early childhood classrooms. She still briefly shared her documentation boards and video-recording of students'

reading at the end of the workshop. Due to the teachers' personal schedules, I was not able to be involved in preparing the workshop. Instead, I attended the one-day workshop to recruit participant teachers. While on-site, I distributed consent letters to the participants and received a signed consent letter from the first-grade ESL teacher, Tricia. Eventually, the participants for Lincoln Elementary School were the kindergarten teacher (the workshop teacher) and the ESL teacher. Both teachers worked at the same school.

Lynn had an assistant teacher, Molly, and in spring 2012, she had a student teacher, Casey. I explained the study to them and obtained written consent from them as non-focal teachers. With the same consent letter used for the parents at Washington Primary School, I included the options for parents to permit my attendance at parent-teacher conferences. Tricia holds parent-teacher conferences jointly with her students' first-grade classroom teacher. I received written consent from the regular classroom teacher on the conference day. Once focal teachers agreed to participate in the study, the written consent forms for children were sent home for signatures from parents. The first return rate at Washington Primary School was too low, so I asked the teacher to send another copy to the parents who had not returned the form. In total, I received 12 of 24 consent letters from the students' parents in the kindergarten class. For the ESL class, six of eight parents gave permission of their children's participation in the study.

Focal teachers. Five focal teachers participated in the study; they were the ones who actually recorded and created displays (see Table 1 for teachers' demography). I observed the process of documentation in their classrooms and interviewed them.

Washington Primary School. The participants were the three teachers in the K/1 classroom: one head teacher and two assistant teachers. Mary, the head teacher, had worked in this school for six years as a head teacher and had worked as a graduate assistant for two years.

Lauren, the morning assistant teacher, was a first-year teaching assistant in this setting, but she had previously worked as a lunch supervisor in the school. Holly, the afternoon assistant teacher, was a second-year teaching assistant. She had worked in the preschool classroom the previous year, and she was also working in a master's certification program in elementary education. She had a bachelor's degree in graphic design.

Lincoln Elementary School. The participants were one kindergarten teacher, Lynn, and one first-grade ESL teacher, Tricia. Lynn had 17 years of teaching experience as a kindergarten teacher. She was one of the lead teachers at the summer workshop for the local district. Additionally, she had one assistant teacher and one student teacher (later in the 2012 spring semester). Tricia had a total of 13 years of teaching experience, mostly with fourth graders. The year of this study was the first time she assumed teaching for an ESL class and taught primary grade students.

Non-focal teachers. There were other teachers in the focal teachers' classrooms— an assistant teacher and student teacher. Washington Primary School had a student teacher, Jennie. The kindergarten teacher at Lincoln Elementary School had one assistant teacher, Molly. Casey, a student teacher, arrived in February 2012. The ESL teacher did not have other teachers in the classroom, but she had a parent–teacher conference meeting with the students' classroom teachers. I observed the teachers when they were involved in the process of documentation or discussed the process with teachers, students, and parents.

Students. I observed the students while they interacted with their teachers and peers in the process of documentation and in reflecting on records and displays that teachers created. At Washington Primary School, I received consent letters from 15 out of 25 parents. Two parents of 15 did not allow me to use visual images of their children. At Lincoln Elementary School, I

Table 1

Focal Teachers

	Mary	Holly	Lauren	Lynn	Tricia
Educational Background	Bachelor in Early Childhood Education	Bachelor in arts and Currently enrolled in the master program in Elementary Education	Bachelor in Early Childhood Education and currently enrolled in the master program in Special Education	Bachelor in Early Childhood Education	Bachelor in Elementary Education and Master in language and literacy with ESL endorsement
Ethnicity	European-American	Asian-American	European-American	European-American	Asian-American
Teaching experiences	6 years of head teacher at Washington primary school	Art teacher in a private elementary school Second year of TA at Washington school	Multiple years of being a sub teacher First year of being a assistant teacher at Washington school	17 years of teaching in kindergarten	13 years of teaching : 10 years of teaching 4 th grade, 2years for reading teacher, First year of teaching ESL student and 1 st graders
Teaching grades	Kindergarten and 1 st grade	Kindergarten and 1 st grade	Kindergarten and 1 st grade	Kindergarten	ESL 1st grade
Interviews (formal and informal)	12 times During lunch time or after school	11 times After school	4 times During lunch time	8 times After school	18 times After school
Observations		Twice a week		Twice a week	Twice a week

collected 12 out of 24 consent forms for the kindergarten children to participate in the research, but only nine gave permission to use visual images of their children. I had six out of eight consent forms for the ESL students' participation.

Parents. Washington Primary School holds a parent–teacher conference once a semester. I attended 10 of these individual conferences. At Lincoln Elementary School, the school conducts a parent–teacher conference three times a year. During the second quarter conferences, I attended one conference for the ESL class and three conferences for the kindergarten class. At the meetings, I listened to and audio-recorded parents' conversations about their children with the teachers while the parents reviewed displays the teachers had provided.

Data Sources

At Washington Primary School, data collection began from late February until the last day of school (the first week of June 2011). At Lincoln Elementary School, data collection lasted from the last week of October 2011 to the middle of March 2012, the week before the spring break.

Data collected in the study consisted of transcriptions from interviews, field notes from observations (e.g., classrooms, teachers' meetings, parent–teacher conferences), audio recordings of teachers' meetings and parent–teacher conferences as well as children's artifacts and the various records that teachers collected (e.g., photos, video clips, or written records) and displays that they made (e.g., documentation boards or portfolios).

I examined the three main perspectives on the process of documentation: (a) recording (i.e., how teachers recorded—taking pictures, writing children's words, videotaping; how teachers created displays—documentation boards and portfolios), (b) creating displays (i.e., what, why, where, when, and on whom they focused in creating displays, what kinds of records

they included in the displays, and what formats of displays they created, and (c) ways and purposes to share the displays with other people and other uses (i.e., how teachers used displays, how teachers used them for communicative purposes with other people, and how teachers used other purposes).

Participant observation. I was a participant observer in this study. The most important aspect of participant observation is a researcher's role or degree of his or her engagement in research contexts. A researcher's role was negotiated and decided on with participants (Graue & Walsh, 1998).

My roles in the contexts. I assumed roles as a facilitator, observer, or extra teacher in the classrooms depending on the teachers' requests and my plans. My planned role as "a facilitator"³ in each setting changed in major ways depending on context.

Initially planned roles. Initially, I planned to assume different roles at both sites. The teachers at Washington Primary School did documentation daily. Documentation is an instructional tool in this school. I had worked in this school before and already knew most of the teachers. At Washington Primary School, I wanted to take on an "observer" role because I thought that because the teachers were already familiar with documentation and had worked collaboratively, they did not need much help to solve problems. I hoped to see and learn about the process of documentation and its use for various purposes.

At Lincoln Elementary School, I hoped to recruit the would-be participant teachers from public schools who would not know much about documentation but would be interested in learning about this strategy to use in their own classrooms. Therefore, I planned to assume a "facilitator" role. The initial purpose of the study at this site was to see how these novices (in

³I planned to provide materials, resources, and suggestions when requested by the teachers.

terms of using documentation) implemented documentation strategies in their classrooms and the effects of teachers' changes on students' learning and teachers' practices.

Changed roles in the contexts. At Washington Primary School, because the participant teachers knew me personally and my experiences with and interests in documentation from when I had worked at this school, they asked me to serve different roles depending on the situation. I was an extra helper; I helped the students with class work, went on the field trips, and recorded students' work as requested by the teachers. My role as a facilitator, however, became more emphasized than I initially had planned. From the first day of my observation, the teachers asked questions (e.g. what are some of the best ways to record students' words?), and as the research continued, they asked for advice on the process of documentation and their lessons in general. Holly, in particular, consistently asked questions and sometimes asked me to assist her in small-group lessons. Her questions were not only about documentation but also about her teaching in general. She invited me to be a critical friend for her paper she was writing for a course on action research.

At Lincoln Elementary School, both teachers already had recording strategies and ways to create displays in their classrooms. As the research continued, during the interviews, I suggested ideas about recording students' work. In the kindergarten classroom, I was mostly an observer and an extra helper to assist individual students or small groups. I sometimes helped her taking photos of students working when she requested. During the early interviews, I learned that the teachers had limited materials for documenting. Lynn had a color printer and other recording devices (e.g., camera and flip camera), but she did not have color-ink cartridges. I provided her with ink. In the ESL classroom, I was primarily an observer and an extra helper whenever she needed me. As the research progressed, my role shifted to that of a partner with whom she could

share her work. Tricia often commented that the interview time with me was good for her because it allowed her to think about her teaching and students. Tricia had a camera and computers but no printer in the classroom. When I asked her whether she would use more pictures if she had a printer, she said she would. As a result, I provided a color printer and ink cartridges for her classroom.

Observed contexts. I observed classrooms, parent–teacher conferences, and teachers’ meetings.

Classroom observation. I observed the process of documentation, their interactions with children and teachers’ colleagues in the process, and children’s responses to records and displays. Classroom observations occurred during regular school hours, and I took field notes during the classroom observations. I had to determine when to be in the classrooms because recording or creating displays was not a practice that the teachers executed continuously. Finding the moments of recording and times when they created displays throughout the schedules was difficult. I spent the first couple of weeks trying to determine the best time for me to observe. All the classes lasted 2.5 hours in the morning and in the afternoon.

At Washington Primary School, I initially focused on project times—large-group time in the morning and study-group time for each teacher (Lauren in the morning and Holly and Mary in the afternoon). I observed that the teachers recorded students’ work in other areas such as choice time or literacy time in the morning and choice time or math time in the afternoon. After the first three weeks of the study, I decided to focus on the afternoon time and particularly on Holly’s lessons for three reasons: (a) I had the parents’ permission for most of the students from Holly’s (seven of eight) and Mary’s study-groups (five of eight). Holly and Mary had study-group times in the afternoon. (I had only three parents’ permissions of nine students in Lauren’s

group), (b) I learned that Holly used various recording systems and had a strong interest in creating various types of displays for her study-group as well as math-group while Mary and Lauren focused on the process of documentation for their own study-groups⁴, and (c) Holly took charge of downloading visual records every day, and she took the initiative in creating documentation boards for the K/1 class as the research continued.

At Lincoln Elementary School, Tricia's ESL class lasted for half of the day. I was able to observe the entire ESL class. In Lynn's class, for the first half of the study, I observed the class mostly in the morning because the students had journal time, and the teacher videotaped the students' reading in the morning. For the second half, I observed the class mostly in the afternoon because Lynn videotaped the math time for a school project.⁵ In the second phase of the study, Lynn sometimes informed me of her plan to share her slide shows with the students or videotape students' reading for the classes in spring.

Teachers' meetings. At Washington Primary School, the teachers were scheduled to meet weekly for one hour. The weekly meetings, however, occurred informally and were not held every week during my research. I attended these meetings four times. These conversations were audio recorded with the participants' permission. I also took field notes of how the teachers used records and displays at the meetings. I observed and documented teachers' ways of sharing and their conversations about children and teachers' practices.

⁴ Each teacher at Washington elementary school had a small group of students in literacy, math, and project. Each planned lessons for their own groups.

⁵ The teachers at Lincoln elementary school planned to videotape their practices for teacher professional development guided by the National Board Certification.

Table 2

Data Sources

Washington Primary School			Lincoln Elementary School	
Participants	Number	Data Resources	Number	Data Resources
Teachers	1 head teacher	Observations:	2 teachers:	Observations:
	2 assistant teachers	Classroom observation	1 Kindergarten teacher and 1 first grade ESL teacher	Classroom observation
		Teacher-parent conferences		Teachers' meetings
		Formal/informal interviews		Teacher parent meetings
Students		Teacher-made documentation		Formal/informal interviews
				Teacher-made documents
			2 Non-focal teachers :an assistant teacher and student teacher in the kindergarten class	Classroom observation
Students	15* out of 25 K/1 students	Classroom observation	12* out 24 in the kindergarten class	Classroom observation
	(*2 out of 15 did not give permission for visual images)		(*3 out of 12 did not give permission for visual images)	
			6 out of 8 in the first grade ESL class	
Parents	10 out 25 parents	Observation at parent-teacher conferences	3 parents in the kindergarten class	Observation at teacher-parent conferences
			1 parent in the first grade ESL class	

At Lincoln Elementary School, I had planned to observe teachers' meetings if teachers had a team in the class. However, Tricia did not have any other teachers in her classroom, and Lynn did not have meetings with her assistant teacher. Teachers' meetings in both classes were not observed. Instead, the teachers had meetings with colleagues inside and outside of the school. During interviews, the teachers shared information about the meetings with me.

Parent-teacher conferences. I observed teachers' interaction with parents by reviewing displays (mostly portfolios) and parents' responses to the visual products. At Washington Primary School, each parent-teacher conference lasted 30 minutes. I attended 10 meetings in this school. At Lincoln Elementary School, a meeting lasted 15 minutes on average. I attended four meetings in the second quarter (in February 2012). I focused on how teachers used displays to share information about individual children with their parents. All the conversations between teachers and parents at the meetings were audio recorded.

In-depth interviews. The purpose of this study was to explore what the participants thought about the process of documentation: recording, using records, creating displays, and sharing different kinds of displays with various audiences. To understand teachers' perspectives on the documentation process, in-depth interviews provided a main data resource.

Participant interviews. Semi-structured interviews during participant observation are more like conversations than structured interviews. Researchers have topics and directions of conversation to pursue, but "the participant's perspective on the social phenomenon of interest should unfold as the participant views it, not as the researcher views it" (Marshall & Rossman, 1989, p. 82).

I interviewed the teachers formally and informally. Initially, I planned informal interviews after each observation for 15 minutes; however, due to the teachers' schedules, some

of the teachers wanted to have a set interview time once a week. The interviews occurred for 20 to 30 minutes after class when the teachers wanted to have a weekly meeting. During informal interviews, the teachers reflected on the process of documentation during the week, using the collected documentation to reflect on their own practices, students' learning, or interaction with their colleagues and parents. The two formal interviews, which occurred in the first and last weeks of the study, lasted 30 to 60 minutes.

Formal questions concerned the general thoughts of the participant teachers regarding their experience with the process of documentation. The informal questions were more like conversations with the participants— exploring specific process of documentation that I observed by reviewing records that they collected or displays that they created. I also shared what I observed in the classrooms to help the teachers reflect on their daily documentation in the classroom. The questions were mainly focused on what the participants did and why, so I was able to gain “new insights into the point of view of the participants” (Dewalt & Dewalt, 2002, p. 120). For example, my interview questions began with, “I saw you did _____,” addressing their recording or creating displays. I then asked the reasons they recorded the specific areas, children, or contexts.

Open-ended questionnaires were used for interviews (see Appendix A). Depending on the previous interview analysis, the questions were generated within the frame of the questionnaires. An ongoing analysis of observation and interview data helped me develop questions regarding the specific contexts that I observed and that they discussed in previous interviews.

Photo interviews. Photos or visual data have been traditionally used in field-based research and ethnographic research for deeper understanding of contexts and participants. Photos can help stimulate participants' memories and reflections and propel participants to

critically analyze their own situations (Ellis, 2006; Fasoli, 2003; MacDonald, 2008; Schulze, 2007).

The teachers sometimes shared their ideas by showing the records that they had collected (e.g., photos, written words of student discussions, or students' work samples). They, however, often discussed the process of documentation without reviewing records. I had to show them photos or copies of other images that they made, and this helped trigger their memories during the interviews.

Collecting documents. Documents collected in this study included photos, video clips, students' artifacts, documentation boards, and other students' work samples that the teachers collected for records or created. I collected copies (e.g., scans, photographs, or photocopies) of teachers' written notes, children's artifacts (e.g., children's drawings, writing, and math samples), pictures, videotapes, or other documentation of children whose parents had given permission for their participation in this study. I retained copies of visual records and visual displays that teachers created. The visual copies were used to prompt my memory, to recapture the missed scenes, and to show other audiences visual examples of my research.

Data Analysis

Analysis was ongoing. An ongoing analysis of observation and interview data prompted more questions related to specific contexts in which the teachers were involved. This helped the teachers to better reflect on their teaching practices and to discuss their thoughts in natural ways (e.g., the thoughts about the specific students in the documentation process).

Thematic analysis. In my ongoing analysis process, I examined recurring patterns, salient points, and coherent threads to the topic by following Graue and Walsh (1998)'s explanation of external codes and internal codes: "external codes, which can be seen as codes

that come out of theoretical and conceptual perspectives brought to the project, and internal codes, which are issues that come up within your reading of the data” (p. 163). This data analysis involves data reduction as collected data are turned into manageable chunks (Marshall & Rossman, 1996).

First, the data from each teacher were analyzed individually. Interviews and observations of each teacher were analyzed as codes. I searched for the key words and phrases, the excerpts contrary to the general ideas, and unique perspectives in each category that individual teachers stated or showed. The codes were organized using Microsoft Excel. For Washington Primary School, I first created the codes from Holly’s interview transcripts and my field notes. I added Mary’s key codes to Holly’s lists. Similar key words were coded into the same category, and new codes were added. Lauren’s codes were then added to the Excel list in the same manner. For the Lincoln Elementary School list, I began analyzing using Lynn’s data. Tricia’s codes were added in the same way as Washington Primary School using Lynn’s data.

Predetermined codes were made according to research questions. Key terms were coded into (a) recording—recording tools, contents to record, and teachers’ intentions, (b) creating displays—types of displays, contents to represent, and teachers’ intentions, (c) sharing—with teachers, children, and parents, and (d) challenges. Emergent codes in each determined categories were found and added. For example, sharing documentation with colleague teachers was expected to show at Washington Primary School. The opposite code, “disconnect among the teachers,” emerged.

Document analysis. According to the topic of this study, I collected documents the teachers created (including sample students’ work). I focused on the displays that the teachers had made because that includes the main documents the teachers shared with multiple audiences.

At Washington Primary School, I paid attention to the documentation boards for the culminating events and students' portfolios. At Lincoln Elementary School, I focused on the organized photo folders Lynn made and portfolios Tricia made. I also analyzed contents of documents the teachers had made. I used the analysis to describe the background of teachers' intentions.

Data triangulation. I referred to records or copies of children's artifacts and pictures and field notes from observations during interviews. This helped me gain a better understanding of the teachers' intentions of doing documentation—recording, creating displays, discussing, and sharing. Showing visual data (mostly photos that the teachers took of students' work samples) and offering my observations helped the teachers articulate their thoughts and verify my interpretation of the contexts during the interviews.

Chapter 4

Washington Primary School

In this chapter I describe how three⁶ early childhood teachers recorded, what they recorded, how they made displays, what they saw from their records and displays, and how they shared records with other people. They explained how to use records and displays with children, better ways to make and use documentation, and how to rethink their current documentation practice.

The project that this class carried out for the semester concerned “museums.” To explain the project and its process, I summarized and borrowed quotes from the four final documentation boards that teachers made and displayed at a culminating event. “At the onset of the project, the K/1 class visited the local Art Museum, the docents answered students’ questions; What does artwork tell us about people who lived in a different time? What is displayed in an art museum? Why can’t we touch things in an art museum?” (Board 1) Then it explained two more field trips to different museums to explore, investigate, and experiment with artifacts from around the world.

After the field trips “students drew memory stories about visiting museums, then categorized the drawings: learning about history, interacting with displays, what things are in museums” (excerpt from board 1). Three study groups were created, (a) What can we learn about other people who lived in other times, (b) what can we learn about art museums, and (c) what can we learn about interactive art? In phase 2, the students were divided into three study groups.

⁶ Mary was a full-time head teacher. Lauren was a morning teaching assistant and Holly was an afternoon teaching assistant.

Then each group initiated a deep investigation into art museums, interactive art in museums, and museums for people in other times.

For the interactive art study group (Mary led—board 2), the project also started with looking at the students' memory stories of interactive art at children's museums. They watched several video clips on YouTube about a Rube Goldberg Machine. They discussed and came up with some questions—how to use an object to knock over something heavy, and if there were springs in a box, how an object would return to the top. To find answers and obtain inspirational ideas, they invited as experts professors from the engineering department at a university and a group of high school students who designed and constructed a Rube Goldberg machine for the department open house at the same university.

Based on the discussion, they designed a ball-ramp machine that they wanted to create and tried to construct it using various materials. For example, holding a ball on the ramp and getting the ball back up provided the basis for a major discussion that the students consider. They tried various materials by which pencils would be held up so that a ball could run down such a track, as well as ways to pull the ball back up. The major inquiry concerned “encountering and solving problems as a major part of the investigation. The pulley brought the can to the top of the ramp, but wasn't consistent in dropping the ball.” Working with the experts, they solved the problems by using pipes.

First the art museum study group (Holly led—board 3) focused on “the process of creating an art museum.” They discussed their ideas and raised questions which they posed to invited experts. For example, “What is a curator?” And “How do you decide what to show people?” To find answers, the group visited the art museum again to investigate the elements of a gallery to create and curate their own gallery. The experts came to answer questions. After all the

discussion and investigation, the students revisited the documentation to record their discussion and investigative experiences. They came up with ideas about what they would need to create their own art museum. They then decided to create a gallery representation. They discussed which artwork among their own art pieces should be hung and how they should hang them in the gallery—for example, finding the right eye level.

The group to investigate museums for people in other times (Lauren led—board 4) initially discussed their prior experiences of museums and drew memory stories. From these stories the students came up with some questions to explore this topic: (a) How did Native Americans live so long; (b) what do they use to make their clothes; (c) what were the houses made of; and (d) did Native Americans celebrate birthdays? While exploring artifacts the teachers noticed some misconceptions about Native Americans past and present. The focus of this group was to dispel those misconceptions as a way of learning and investigating. They visited a local Native American museum to learn about the people who lived in the past and to exhibit information that they collected. After the field trip the group decided to make a representation of a wigwam, a dwelling of Native Americans that they saw at the museum. They drew the plan of the building, and they actually built a wigwam using natural materials. They invited experts, namely, Native American from Illinois, to help find answers.

Creating Displays

The teachers used different techniques to record diverse aspects of what was going on in their classroom. Depending upon the teachers' preferences of recording systems, they created a variety of displays that they would share with various audiences. The teachers in this process shared their thoughts on difficulties of using various technologies, as well as changes in various types of displays.

Recording. All the recording tools were available from the school. Video-recording, photos, recording students what students said (hand-writing and typing), and collecting student work samples were the main techniques teachers used. According to the teachers' preferences and attitudes toward using these technologies, they used certain recording systems more than others.

Photos. Taking photos was the main tool for recording students' actions and behaviors, as well as work samples that could not be stored unless digitalized. For example, a 3D representation or student-made structures with wooden blocks or pattern blocks were often photographed.

Here I think that I've learned how deeply children can focus on something. For the most part, they ignore us when we were taking pictures, so you really can see how they are deeply involved in something, how they are really communicating with another even in still photos, and they are really considering things. (Excerpt from interview with Mary, 02-22-11, p. 10)

Webgal book. Photos were supposed to be downloaded to the class computer every day, using I-photo software. The photos were organized by date. Through this software, photos were stored in in files of different formats: images, thumbnails, pages, and indexes—all according to file size. Image-sized photos were sized larger than the other two types and were used to make documentation boards or were printed out for visual aids in lessons. Thumbnail-sized types (small size) were used for making weekly newsletters and were put up on the school website. The pages included the smallest pictures. Every day photos were printed out. The hard copy of photo pages was placed in a binder, called a "Webgal book," so that all the teachers were able to access all the photos whenever they needed to.

The photos in the Webgal book included project work (e.g., field trips, students making presentations, children's written records, and experts' visits), doing art activities (e.g., drawing,

painting on an easel, and dancing and movement), writing, class events (e.g., birthday parties and other school events), students working with various blocks and manipulatives such as beads, pattern blocks, wooden blocks, geo-boards, number dominoes, unifix cubes and cuisenaire rods), and their outside playtime (e.g., playing with peers, drawing on the ground). The most numerous photos included along with project-related photos were those of students working with blocks and manipulatives.

Recording what students said. The typical method for collecting children's narratives was observed during large- or small-group discussion time. The teachers wrote down each student's response separately on sticky notes and put each note on the chart paper as children spoke. The written records were sorted into categories and used to create webs. I saw sticky-note records on the documentation wall that were made before I started with the study.

Throughout my observations, however, teachers wrote down students' words mostly on a note pad or typed them into a laptop computer. As research proceeded, teachers introduced a different strategy to record large-group discussion. During the large-group discussion, one teacher was sitting next to the group while another was leading the discussion. The recorder teacher (mostly Lauren) typed into a laptop the conversation between the teacher and students, which mainly concerned project-related topics. Lauren was in charge of typing the whole-group discussion. She reported that typing was an easy way for her to share with other teachers the records of group discussion, and to transfer these records into displays. The hand-written or typed records of students' discussions included students' initials and their words. Sometimes only key phrases were recorded. The teachers' words, such as questions or responses to students' words, were not recorded. For their study-group discussions, each teacher used different tools to record what students said. Lauren typed, Holly video-recorded, and Mary wrote down.

Sign-in questions. Every morning when the students came in, they were supposed to answer the question of the day. The questions were yes/no types that were connected mostly to the project, or sometimes to special events such as culminating proceedings. The parents read questions to the children who were not able to read by themselves. In some cases, a blank sheet of paper was set next to the sign-in question sheet so that students could write down their ideas. For example, one question, posed on May 3, 2011, was, “Do you have any suggestions about how to get the balls back to the top of the ball ramp?” Six students answered, “Yes.” Then, those students wrote down or drew their ideas on the sticky notes: “use pulley,” “put a bouncer,” or “a bucket is tied to the pulley.” Each sheet was filed to a binder on a daily basis. The results of the daily questions were supposed to be shared during the first group time in order to open up questions and get more ideas from the whole group. Mary explained using the sign-in questions for her study group:

We are scheduled to visit the local museum. We’ve been in contact with the nature history museum, which now has a warehouse over here, but they have a traveling museum. I’m excited about that. We don’t have a day yet. They will bring an exhibit to us. It’s just a fascinating thing. It was our “sign-in” question today: “Do you think a museum could move and come to you?” And everybody said, “Yes.” We had a conversation. . . . They like to show off their things so they can leave some behind. They want to see our artwork as well. (Excerpt from interview with Mary, 03-17-11, p. 3)

Video-recording. Video-recording was another tool used to record students’ discussions during small-group or large-group lessons, experts’ visits, or class events. The Webgal book in the teacher’s computer included video clips, along with photos. Teachers did not video-record every day, as was the case with photos. The video folders included project-related clips (e.g., discussion with experts, field trips, small-and whole-group discussions, and class events). During my observation, video-cameras were used mainly to record students’ discussions (during experts’ visits), such as posing questions and eliciting experts’ responses. Each video clip was supposed

to be downloaded into the teachers' computers in the same way, according to the date of recording.

Holly used video-recordings to capture students' discussions of her study-group. The following excerpt shows an example of how Holly used the small-group discussion from the transcribed video clips to see what the students thought about the project, and how she used the students' thoughts for planning the next lesson.

Within those clips, I draw my questions for the next study group from them. Today, they had an argument last time that either frame the art works or not frame because we read a book, called "dots." One page shows art works framed and the other page shows a gallery that has no frame. It was just canvass. So I asked them, "Should we frame art pieces or not?" (looking at the transcription) The half of them was like, "No. no frames." The other half was like, "Oh, yeah. We need frames." And P was like, "I have a compromise." She explains: "We can frame some or we can frame none. We don't have to frame all of them." Then, L says, "No." And I asked, "Why?" He said, "Then, it is not going to look like together." And I asked, "Oh, what do you mean?" Then, they just kept talking . . . this is my rough draft. Then, L was frustrated and said, "Fine. I agree." (Excerpt from interview with Holly, 04-06-11, pp. 5-6)

She continued on the value of video-recording students' discussions—emphasizing its usefulness to elicit rich discussion and further more discussion.

I would not have gotten this amazing conversation if I didn't video record them. I type pretty fast so that I don't mind spending some time. I just go back and rethink through and I want this back to them. At the end of the clip, I said to them, "I am going to type up everything that you guys said and I am going to show you." They know that tomorrow they expect to see the transcription of the videos. I want to read it to them and have them think about the discussion. Frames, the content of paintings are important. . . . Action research class is what inspired me to record. But I am realizing how much better and richer our small-study group is when I know what they talked about the day before. . . . So the research inspired it, but I am going to continue it because it helps me be a better facilitator and further their discussion—the discussion of students. I was planning to do it for two weeks, but I will do so for the entire semester. (Excerpt from interview with Holly, 04-06-11, pp. 5-6)

Collecting students' work samples. In this class, student's work samples were another main data source for the teachers to accumulate into individual files. This type of collection

included writing, survey sheets, 3-D structures (individual- and group-made), artwork, daily surveys, and other types of artifacts.

Project journals. A half-sized bound journal was made available for students to record their ideas and thoughts about the project. They drew their ideas or wrote some related words. For example, while Mary's study group was watching a YouTube video on the Rube Goldberg Machine, I observed that students took notes in their journals. Later in the interview, Mary explained this by looking at one boy's journal:

This is his note-taking. So he can tell you what all these mean—that was important for him to have . . . here is a ball rolling down. . . . Here is a swinging something. . . Those are their individual notes. When we come back together to discussion, so they took this note while they were watching it or they made sketches while they were watching videos. Then we got together to work on, share these ideas and share other ideas. And [the local museum] part is that they just made observational drawings of things that they saw. (looking through the boy's notebook) These are TPs at the local museum; there was a full-sized TP in there. It was huge. There was an opening when you look in, you see things . . . he was noticing looking in. (Excerpt from interview with Mary, 04-07-11, p. 3)

Writing journal. The writing journal was used for a literacy lesson. Once a month, the students picked two samples from the journal book for the month, which they thought to be their best writing. They wrote reasons why they chose the samples to go into the portfolios. Mary explained about purpose of journal writing:

In our journal writing time, there is a progress of the year. First they are writing simply for fluency, giving ideas on paper and using their spellings. As a year progresses, we ask them to write more and more details. We have direct instruction with small groups on punctuation and all the conventions of writing. When I think about progression, go from most open to adding more and more conventions. With the goal that in spring or sometime according to what their writing is, where they are writing a report or a story that has beginning and end and a report that tells about the same thing. So they are writing several sentences about the same thing. . . . With the idea in mind, you know they work with teachers to focus on those conventions to put in the form that's readable for everyone. Also, that brings them back to, when they read it aloud, they are seeing their own words but the words that they know, they will connect with them. They also illustrate that and we bind it and share with the class. The next step is that they take that home and share that at home and bring that back for the library. . . . I don't think that

instituted very well. They are in the library. They read it to the class and they can take questions. (Excerpt from interview with Mary, 03-17-11, pp. 1-2)

Drawings (observational drawing or design drawing). The students' drawings were primary records on which students represented their ideas. Usually the teachers dictated the students' explanations of their own artwork. Particularly to represent students' ideas about the project, children's drawings, such as observational drawings and design drawings, were important data for teachers to employ to assess students' thinking. In particular, by comparing a series of children's drawings the teachers were able to see the progress of the project as well as individual students' growth in thought. When I walked into the classroom (on April 21, 2011), I saw, on a table, each child's designs (time-1 and -2 drawings) of a ball-ramp structure. They were sorted by dates (time-3 drawing was made in May 12, 2011). I asked Mary about her intentions for sorting and her foci for understanding the meaning of the sorted drawings.

Mary: I put some of their words and they can describe what was really happening. They listened to one another and talked about why something would work. (Mary is looking at the pictures of their time 1- and 2-drawing designs.) I think that a lot of their formation of questions—you can see their critical thinking—how we the ramp up, if we can use robotic arms, if we can use spring to back the ball up to the top.

JK: When you look through their drawings, what do you see?

Mary: It was solving two particular problems—wasn't the whole ball run? Focusing on one part of it. This doesn't look detailed, but it's actually taking this part and only looking at that. I'm thinking that they just kept scaffolding. . . . They started out with something that they are seeing. They represented in their drawings and words something that were concrete. They've already seen this. And then, (picks the one she thinks most representative) became a design. . . . This is an even more focused design. . . . This was the most challenging part really because they didn't have enough information to solve this problem. They knew what their problems were and they still tried things that they had. . . . They were still conceptualizing and they were still thinking, "How could we solve these discrete problems of ball running?" So, what I think was most valuable about that was that they were really thinking of problems in a way that . . . these are trial and error but except for them, now we don't know. They needed another expert to ask questions for other problems. (Excerpt from interview with Mary, 05-20-11, pp. 4-5)

Choosing recording tools. Pictures, written records, and video clips were the most common recording methods that the teachers used. The school was equipped with all these recording devices. Not all the methods, however, were used by all the teachers. Each teacher preferred a specific way to document what to record. For example, to record students' words, Mary used mostly handwriting, Lauren used more typing, and Holly favored video-recording.

Holly said that she preferred video-recording and photos. During these observations, she always brought her own camera and laptop for small-group time. Holly actually preferred using a video-recorder because she thought it helped her to focus on teaching (leading student discussion) rather than on writing everything down.

Holly: I videotaped, and the purpose of it is to record the dialogues. They say such a good thing, but I don't have time to write it down at that moment. Video-recording has been good. It helps me be less worried about it (writing it down) and focus more on topics. It helps me see teaching. . . . It's such a burden lifted off my shoulders. I've been feeling so good to go into this study group because I don't have to be stressed out like, "Oh my gosh, I have to write everything down."

JK: But still you have to spend some time to go over it.

Holly: I would rather do that. Within those clips, I draw my questions for the next study group from them. (Excerpt from interview with Holly, 04-06-11, pp. 1 & 5)

Mary mainly used handwriting to capture students' discussions. She admitted that video-recording might be useful to catch students' words, but nevertheless she preferred to concentrate on the use of handwriting.

We are making progress. What advice do you [JK] have for us for capturing the conversations that are going on in the group meeting in the morning about the project? Video camera, but it's really hard to use that. . . . Just maybe taking notes or maybe revisiting that. So come back later and individuals will say, "I wrote it down and you said this. Maybe add onto that." We could take a little more time that way because they do have incredible ideas. (Excerpt from interview with Mary, 03-17-11, p. 4)

Lauren preferred typing, as children said this method of recording was fast and easy to use to share with other teachers to help them make displays such as documentation boards as needed.

That [typing] was really nice. We'll continue doing that. The group meeting is having that document. That helped us a lot. For [preparing] the culminating event, I just emailed everybody—all of the things that we had written down. So then if anybody, in the past, we had to go look on the boards, and look through the post-notes. But this year, we just did cut and paste. . . . So I think it really helped us; at least that helped me, that component, and I remember that we had too many quotes. But it was a good problem; rather having more things than less. We can get to pick from them. So I guess right there it really helped us in general in the documentation of the project. (Excerpt from interview with Lauren, 06-01-11, p. 7)

Recording what students exactly said. Obtaining what students said was one of the main foci of the teachers recording. The teachers were concerned about getting exact words that children said. One of the questions Mary asked me throughout the interviews was about this issue—“How I can get children’s exact words as they say them?” When I looked at the teachers’ hand-written records of students’ whole group discussions, sometimes just key words of what students said were written. Holly also addressed this issue, too. Holly mentioned that she sometimes looked at children’s words written on sticky notes, but it was hard to understand how children came up with the ideas. “Pretty much what I try to do is to look at their Post-it notes to see what the kids say. They still lack how the kids get to the points that were written down on the post-its” (Excerpt from interview with Holly, 03-16-11, p. 10). Holly stated that because the kindergarten and first grade students were articulate enough to express their ideas verbally, she thought it was important to record exactly what they said.

In Prek, it’s different. . . . It’s more like the teacher’s words, not really kids’ words. Even if they do say some interesting, it’s most likely reworded by the teachers. I didn’t like it. I think it is more important that you keep it as the way it is and add on the words to further their thinking because what they say should be what it is on the documentation. I’m really

excited about that [working with K/1] to have their words out there and show “You said that.” (Excerpt from interview with Holly, 05-04-11, p. 6)

She thought that it was good to have two teachers in large-group time: one to lead the group discussion and the other to write down words, but she asserted that video-recording was the best way to get the students’ exact words.

In a bigger discussion, you still have to have two teachers hopefully. One teacher should write down children’s words and the other teacher should focus on leading the discussion. I don’t know what’s going on in the morning. . . . The conversation is vital to the project. . . . Sometimes you forget and sometimes you might reword what the students said, but in actuality, that isn’t what they said. They were trying to point out something else. I felt like that we did that a lot last year. I wouldn’t remember what they said. I do have much transcribed discussion. I really think that videotape showed it off. (Excerpt from interview with Holly, 04-06-11, p. 12)

Lauren mentioned that right after taking photos of students’ work, she tried to write what the students said at the moment on sticky notes. Even though this system did not work well, she thought this would help her capture the children’s exact words when she creates displays, she would get exact quotes, instead of her remembering what happened.

The thing that I wanted to change at the beginning of the year, which ended up not working out, was to have something with the camera to write on, so you can write down the quotes that they were saying so that you have quotes and pictures. In that way it’s totally complete; instead of being like, “I know what this is an example because I was there; I remember what happened,” but that’s not the same as capturing the words that the child has. . . . I tried clipping things under the camera, but the next day it was somewhere else. That didn’t work out but ideally I’d like to be able to have those things. So it wasn’t later on writing about the picture and what happened. But at that moment, you capture what is really happening, like a complete picture of it. . . . I write them [children’s words] on sticky notes and stick them on the computer, then I go and put them into [the computer] later on. . . . And next time, when I have a time for documentation, you just put it into a Word document. (Excerpt from interview with Lauren, 02-28-11, p. 7)

Displaying. The teachers recorded students’ artwork, narratives, or behaviors/actions by videotaping, taking pictures, or writing down words. With teacher- and children-made records,

the teachers converted those records into some formats of displays. As the culminating event and parent-teacher conferences approached, teachers began talking about how to use various records, make types of displays, and share them with audiences.

The displays in this class that the teachers made included individual portfolios, an i-movie, PowerPoint slides, photos, video clips, journal books, documentation boards, a class book (e.g., yearbook, field trip book), a survey binder, the project book (white book), and the school website. Most of the students' work samples (e.g., drawings, writing, or journal samples) were organized according to learning domains—math, literacy, project, social/emotional, and arts/aesthetic—in their portfolios. Students' writing samples were used for different types of displays: a part of their portfolios, a part of the documentation boards, and class-books. All these types of displays were used to share with various audiences, mostly with the families and students at a culminating event, or an art show and parent-teacher conferences. The key final displays that all the teachers actually created at the end of the semester and focused on talking about during interviews were documentation boards and portfolios.

Documentation boards. Documentation boards were one of the important kind of displays all teachers had to make, mostly related with the project (the main final documentation that the teachers focused on talking about). They made documentation boards for an *art show*⁷ about students' artwork or 3-D representation, but during the interviews they talked mostly about the project documentation boards. The teachers in the K/1 class decided to make boards of each study group in uniform formats. Each group had nine PowerPoint slides on one board.

⁷ An art show is one of the school events to share students' art work. The art show in the research period was held combined with the culminating event. The teachers prepared displays for the project and the art show. During interviews, however, the teachers discussed creating documentation boards mainly on the project.

Documentation wall. A documentation wall in the classroom served a similar role as documentation boards. The difference was the wall's changeability. As the project developed, the wall was supposed to change according to Phase 1, Phase 2, and Phase 3. The records included photos, project webs, and students' drawings or writing samples—all of which were connected to the project.

On the first visit when the project was in Phase 1, the wall featured a collection of children's words written on Post-its, as well as their memory drawings. During phase 2, the teachers prepared a documentation wall before Family Night (April 18, 2011). Mary and I talked about what to include for Phase 2 and how to represent them. I suggested the types of branches of what each study group experienced with photos and students' work.

JK: That front documentation wall will be for communicating with parents?

Mary: And hopefully we can do it in a format that will make a sense for the students so they can come back—here is what we've done so far.

JK: How are you going to indicate this direction?

Mary: Okay. This really helped us have some goals. I don't know what it's going to look like. I have still too many things to get ready for it. . . . I want to leave those Phase 1 things. But I think it's interesting. We should add even vocabulary lists—vitrine. . . . curator, docent, gallery, exhibit, installation. I heard somebody said, it's R, he had gone to the field museum in the summer. The dad said, "We can go there again." And he said, "We can see the exhibit!" I loved that. He was so connected to [the project]. . . . field trip, study groups . . . it's really interesting to read through from the application for the next year. Some people commented, "I saw the children's words up on the wall!" I really think that they noticed that. It was awesome.

JK: Essential understanding should be there. It comes from an essential understanding. For each study group—summaries and some photos from each group, I need to visualize the direction of where the study groups came from and where this direction goes toward the end.

Mary: So what comes after? What do you see coming after, though?

JK: It depends on what each study group has. Some common things—summaries, some field trip.

Mary: Oh, right. Their representations . . . I can see how having it growing that way would really help the laypersons. I also think it could bring that back for the students. Having that understanding column. . . . Really from the beginning part, the essential understanding so in Phase 1, the teachers have their project webs,

and students . . . all group field trips and the students' questions. (Excerpt from conversation with Mary during teachers' meetings, 04-12-11, pp. 4-5)

The actual records that they put up were for Phase 2 were each study group's photos, children's names in each group, and the titles of groups on three printed-out PowerPoint slides. The records for Phase 1 were rearranged: students' words, project webs, and Vann Diagram. Their memory photos were taken off.

Phase 3 was not actually shown on the wall. Since they had a culminating event not in school but outside of school (at the local museum), the records on the wall had not been changed since Phase 2. In an interview before the culminating event, I asked Mary about what should be on the documentation wall. She mentioned that she would put on the wall the same PowerPoint slides as the documentation boards because no visitors to the culminating event would come to the class.

Display boards⁸. These boards displayed mainly students' art work, drawings and paintings. The K/1 class used the two boards. The art work from the last semester were displayed on each board with pictures of students' making arts, hand-written or typed description of the art activities, and students' responses. In this study, Holly's math-group students used one board to display their pattern artworks⁹.

Portfolios. Each student had their own portfolios. Portfolios included five different learning domains: project, literacy, math, social/emotion, and arts/aesthetic. Each domain had a separate folder, including a portfolio selection sheet (photos of students' representations and them working to create something or working with peers, as well as a short description of the

⁸ For the explanation of display boards, see p. 30.

⁹ For the description of the process of creating the display board by Holly's math group, see pp. 98-101.

rationale of students' development in an area), students' artifacts (copies and originals), other standardized assessment results (e.g., Early Screening Inventory), checklists for reading and math, and a transition form that the head teacher used to describe overall aspects of students' performance in each area. The portfolio selection sheet and transition forms were also stored in the teacher's computer.

Each teacher had their own project study group, math group, and literacy group. What kinds of artifacts were included in the folders depended on which groups the students were involved in. Holly took over arts and aesthetics and Lauren did social/emotional folders. Mary was supposed to write transition forms and other portfolio selections in the unfinished areas.

Different artifacts generally included were in each domain folder, for example, a project folder contained a project notebook, observational drawings, and other students' writing samples related to the project and photos of field trips. The literacy folder contained writing samples that the students chose monthly from their writing journals or writing that they did in other literacy times, or reading test results. The math folder consisted of math test results and math worksheets. The arts/aesthetic folder had a portfolio selection sheet, along with a large artwork folder that included paintings, drawings, and design works that students created over the course of the year.

The portfolio was mainly for the parents. The teachers were supposed to periodically collect students' artwork and photos and file them to the folders. These collective data were shared during parent-teacher conferences.

Newsletter. Mary, as a head teacher, created newsletters to send home for the family every other week. The newsletter included photos related to the progress of project work (e.g., students creating 3-D representations, students' artwork in new art activity) with descriptions, written explanations of project updates, or some class/school events, and upcoming events.

I tried to use a newsletter to use upcoming events to give information about the progress of the project. I think the pictures . . . just give them a glimpse of what's going on during the day. Then often I have conversation-starters so that some parents were like, "I asked my child what they did today?" then they just said, "I don't know. I didn't do anything today." I give them specific questions to ask at home. Just news and updates so that they can have ideas about what's going on during the day. (Excerpt from interview with Mary, 04-07-11, p. 6)

School website. The school had an official website. It was supposed to be updated by the head teachers—mainly about reporting current in-progress projects. The audiences for the website were considered to be parents and outsiders who might be interested in the school curriculum. When I talked with Mary about the website, she expressed a desire to work more on websites to provide more information, but she thought that parents would not really check the website. Holly, who was working on the computer and listening to our conversation, jumped in, and they started talking about the website to communicate more with the families.

Mary: I should be uploading this regularly on the website, but I haven't done that this year. I also haven't updated the website pages for a long time, either. But I was doing that last year, much more regularly than I guess. It's really brief, but it's just to give a snapshot of the K/1 emergent way because the website is more for people who are looking into the school than for the parents. But I would like to know from the parents if they look at the website. I haven't heard anybody say [about the website].

Holly: I heard some people [talked about it].

Mary: That has not been updated?

Holly: Yeah. Some people wish that it could be more for parents' letters at the school. I heard from two parents. I'm going to think about what I can do easier for you to use.

Mary: It's not that horribly hard.

Holly: I know, but when you want to have the section like galleries, you can just post, like, pictures of the day or a field trip. Just upload pictures and it will be galleries, news section—what happened that week.

Mary: Have you talked to the director about that?

Holly: A little bit. I might just do that.

Mary: I'm wondering if she is willing to hire someone for that. I think you should suggest that and ask if that would be something. (Excerpt from the interview with Mary, 04-07-11, pp. 6-7)

DVD (movies and slideshow). All the photos and video records that the teachers took were stored into DVD format to create a class slideshow and movies. Holly initiated this approach by combining all the photos and video clips as well as burning them onto a disc. The digital records in this DVD were shown as a culminating event, exhibited on TVs and projector screens. Holly mentioned that her decision to burn DVDs for all the students came from parents' requests during the previous semester.

We did that last semester. I made a video with my study group. A lot of my parents came up to me and said, "I want to have that video." I burned a video along with the PowerPoint [slides] that we made for the culminating event. So we just did that. I've been thinking of this for my own study group, hopefully splitting up the DVD and pictures. I will ask Mary and Lauren to do their own thing, too. "Give it to me; I will burn them in DVD." That's all I did last semester. . . . It's like souvenir and memory. They can have it forever. They can look back and be like, "I remember doing that!" (Excerpt from interview with Holly, 04-27-11, p. 5)

With the recorded video clips, the teachers gave them continuity by adding movies and editing the files. For example, Holly's math group, as a result of learning about measurement, made a music video. Some of the group members, who were in the preschool class the previous year, mentioned that they had made a Pre-K measurement song music video. The teacher brought the file to the group and they decided to make a K/1 class-version¹⁰ of it.

That was something fun for them to do and [gave them] purpose. Why do you want to record a song? It would be more interesting if they listen to it and sing with it. Do you [JK] remember the measurement song? M and L [who were in Pre-K class in the previous year] still remember it. Yesterday we talked about measurement in the study group. They asked, "Can we sing the song?" and M started singing it. I think that that's because that of course we sang over and over again, but more because we also made a video and they saw that and took that home. So I'm thinking that if we can make another DVD for the parents this semester, they can share at home. And hopefully remember the coins. This really is because I really want to show what they are doing in math. I made a lot of little movies with them. During a culminating event, I can use my laptop to show math learning for this semester. (Excerpt from interview with Holly, 04-13-11, pp. 2-3)

¹⁰ For the discussion by Holly's math-group to create the music video, see pp. 101-102.

White book. On the bookshelf located between the two classrooms were several white binders, which the school referred to as “white books.” These white books included all the project works that the students and the teachers recorded: project webs, worksheets, students’ observational drawings, photos, resources and references, students’ words, and teachers’ reflections. The data were organized into the three phases, borrowed from the concept of project process in the Project Approach: Phase 1, Phase 2, and Phase 3. The teachers’ words explained what the teachers and students’ ideas and questions about the projects were; how the projects were evolved into creating several study groups; how the students investigated to find answers; what were resources, such as observation, interviewing experts, and going to field trips; what were the answers they learned throughout their investigative work; and how they shared information with different audiences. After each project, the teachers saved all the materials that they used, as well as students’ work samples pertaining to the project, and all other records. During the summer a hired helper organized all the collected records into Phase 1, Phase 2, and Phase 3, into respective white binders.

Students-records. Some of the students’ works were recorded by the students themselves by taking photos. Sometimes the students participated in selecting what kind of their own work samples would be turned into final forms of displays. For example, every month the students chose two writing samples for their own portfolios and wrote comments about why they thought that was the best work for filing into the portfolios to share with their parents.

Sometimes the teachers let students take photos of their own work, which was related to students’ behavior management rather than intentionally planned. For example, children taking photos was seen as a way to solve a problem regarding sharing materials.

(The three boys are playing with pattern blocks. They are each building a structure that would eventually be connected to one another. One boy is approaching them.)

- B1: Don't take mine yet. I'm not done. (He leaves the room.)
(Somehow the boy's structure has been combined with the rest of the boys, and some part of the boy's work was gone. After 3 minutes, the boy comes back with tears in his eyes.)
- B1: I told you not to break mine down! You are taking mine apart!
(B2 is sitting at his seat.)
- B2: I didn't! And you were not here. I didn't know that.
(The boy runs to Mary and brings her to the table.)
- B1: They broke down mine!
- B2: But you were not here! I didn't know that it was yours.
- B1: I told you not to!
- Mary: Well. (to the boy) if you left the seat, they can use whatever they want.
(to the group) What do you need to do next time? Maybe you could ask the teacher to take pictures before you knock down someone's work. Anyway, it's time to clean up. Here is a camera, and take pictures of your work.
(Excerpt from observation of choice time, 05-20-11, p. 1)

Difficulties with technologies. The teachers' preferences for types of recordings and choices about making final documentation were related to issues dealing with technologies such as downloading photos or using computer software to make various final forms of displays, as well as taking time to download visual records and review them. Throughout the observations, some of technological issues occurred to the teachers.

For example, they recorded several video clips with the school video camera; however, Lauren and Mary rarely downloaded the video clips in a timely fashion. This was one of the reasons why some teachers had difficulty in transferring the video data into the computer, as evidenced when they said, "No" to my question, "Have you looked at the video clips that you recorded last time?"

Mary appreciated the advantages of video-recording to capture students' discussions. She, however, said that the technology took time to manage and to show to students.

Video clips, we have used video clips to communicate with people who are coming to culminating events and we've used them at conferences. I haven't used them so much in

the classroom to show the children what's going on. . . . I think that's a goal to be able to look back at the conversation that they have and reflect on what they were really saying. So far more we just brought those words up again orally rather than playing the video clips but I think that would be a good strategy. I think it's just difficult because there is never enough time. . . . Frankly, that's probably the main reason that I am not using video clips with children. It's just having that time to put it in a format that I can show it back to them. I think there has been a huge change in technology just since I started. . . . I think all of that technology were changing things for everybody in using any kind of recording in classroom. (Excerpt from interview with Mary, 02-22-11, p. 4)

Holly, who had her bachelor's degree in graphic design, said the current format of documentation boards using PowerPoint was an easy way for other teachers to use; however, she also stressed that using her graphic design skills to make better documentation should be encouraged.

I agree that PowerPoint is the easiest way for teachers, but I think they should not be a set standard, like what kinds of texts or styles of texts you should use. I don't know that needs to necessarily be a certain font. . . . I think that there are better ways to show conversations and it would be nice to have full-size pictures and another slide to explain the pictures—not pictures with a title and you move on. I honestly think that I can make a board to look so much better. . . . With my graphic design skills, not just using PowerPoint, Photoshop . . . stuff like that. You know Photoshop is simple. Maybe it's not available in some places but I'm pretty sure that most of schools have Photoshop programs. It's a presentation. You want it to look good. That's all I am thinking. Wouldn't it be nice to look at something really cool? . . . Draw people's attention first and then have them read. (Excerpt from interview with Holly, 02-24-11, pp. 9-10)

Holly's expertise was appreciated by Mary and Lauren. Holly expressed some overwhelming feelings¹¹ about this responsibility. For example, although the photos were supposed to be downloaded into the computer everyday as daily folders and printed out for the Webgal book, there were missing days.

That's my responsibility. . . . Nobody else knows how to do it even though the directions are in the binder. When I'm gone, the camera does not get downloaded. . . . They are

¹¹ Holly showed mixed feelings about her responsibility in terms of documentation throughout interviews. I will describe more in the later sections of *disconnection* and *Holly's initiatives*.

trying. But most of time, sometimes it gets too busy for them so that they don't take pictures. . . . I always try to find to go in outside of the school because it's overwhelming. That's the one word that I can only say. It's overwhelming. (Excerpt from interview with Holly, 03-16-11, p. 11)

Changed thoughts on documentation. All the teachers mentioned that in spite of various difficulties, their thoughts on documentation had progressed, and they expressed the need to continue. As Mary stated, she was still in learning process. For example, by reflecting on her first encounter with documentation when she worked at this school as a teaching assistant, Mary appreciated how much her understanding and skills for documentation had been developed.

JK: What was your first reaction to see documentation that you are doing now? Have you changed your thoughts about documentation?

Mary: Yeah. It's changed very much . . . all the time. I'm learning more. . . . I started out with far too many words—my own words on documentation. It was hard for some people to read all of that. Evolving in how I'm thinking about images that are important and children's works are important and their words about what either they learned or observed, that bring that story to life . . . what they are doing in the project.

JK: On your first year as a head teacher here, what did the documentation look like?

Mary: We did do formal documentation boards for the project. That was my first time doing that. We made boards so we could take [them] to national conferences. Again, they were too wordy. . . . But I think that's changed what I've made, as being able to focus more or less texts. (Excerpt from interview with Mary, 02-22-11, p. 3-4)

During the research period, Holly said that because she felt that she was using more documentation strategies and her documentation skills were appreciated by the teachers, her overall skills had grown since she started.

Because last year I think if I had to videotape, I probably would have not had time because I was too busy with lesson planning or restructuring or rewording my documentation. I had more freedom to record, show it, or transcribe and bring those ideas that the kids had back to them. That's what it should be. That's [what] we didn't have that last year. We didn't have time to do that because there was no time made for us to do that. I'm trying to think back to our schedule . . . there was no time. (Excerpt from interview with Holly, 04-27-11, p. 4)

After the culminating event, she mentioned this particular achievement:

Holly: It's ten thousand times better [than last year's documentation boards]. I don't even remember what I did last semester. I don't remember some of them. Now I'm thinking about it. It just made such a difference.

JK: Do you think it is because you used your expertise on this time like you said before?

Holly: Yes! I did. I came up with a format of these two big boards [documentation boards]. I designed it. I designed the floor plan. And it just turned out really well. I feel like that people acknowledged that aspect of me. This is a really strong point of mine. I'm a visual thinker. I need to see things visually. That's what people needed, also.(Excerpt from interview with Holly, 05-20-11, pp. 14-15)

From displaying teachers' work to displaying children's work. Holly said that her thoughts about meanings of documentation had changed from teacher-focused to student-focused.

I think that the first year, I felt that it was to prove what we are doing, and to prove that I am doing something with my kids. I mean, that it's still there. Then, at the time, I want the kids to see it. I want to make documentation purposeful. I don't want to be like I'm proving to these people walking through a hall or parents that we are doing something. It should be a part of a project process. I don't know if that's evitable, but it should be. (Excerpt from interview with Holly, 02-24-11, p. 5)

Mary mentioned similar thoughts about documentation from teacher's work to children's work and to value individual children's works instead of displaying all the children's work.

I think what I took away from my experiences here [to the public school classroom] was showing children's works instead of teachers' works. While the bulletin board has been traditionally in that school, sort of teacher designed, it might be the world map, things like that. I was much better at showing student's work and students' works-in-progress, I wasn't as much adept yet at putting in teachers' . . . using words to communicate the teacher's thoughts about that learning process, but some of children's words. Just valuing the individual's rather than putting up the same thing for everybody. (Excerpt from interview with Mary, 02-22-11, pp. 2-3)

What Did Teachers Intend to Show?

With all the various tools, the teachers documented a variety of contexts throughout the day. The main foci that the teachers captured were the process of the current project. Other focus

areas that the teachers tried to capture included choice-time activities, math lessons, literacy lessons and classroom events.

Still, all the teachers' intention throughout the interviews as well as through the various records and the main displays (documentation boards and portfolios) showed that most of foci concerned student's growth through portfolios and the process of the project with the synthesized use of photos, video records, written narratives and other students' artifacts. Holly also focused on creating portfolios and display boards to represent what her math-group did and learned (I will describe its process later).

The process of the project. The main focus of recording was to capture the process of the current project. The times when the teachers recorded included when they had each study group and large group. To show the process of the project, all the teachers said that they focused on showing students' discussions and different ways that students engaged in the project and project-related experiences. The process of the project that the teachers focused on was students' discussions, their levels of understanding and misunderstanding, trial and error occurrences, students' interests, and their engagement in learning,

Students' discussion. All the teachers thought that students' conversation was the best way to show the process of the project. They all talked about the importance of recording and ways to record the students. Mary explained the rationales for emphasis this:

Mostly, I wanted to show the progress of children's ideas. . . . their original designs and what they did to get to the next. . . . Trial and error is the major part of what we do and solving the problems. . . . That's one of the main elements of inquiry. You have questions and you tried something to solve it. If it doesn't work, you have further understanding and you can build upon that. So, they have meaningful conversations. They were conversations. I found the pictures of the ball run that they saw on the video. I really wanted the public and parents to be able to see that image of what really started their thought process. These show that children are doing designs on the chalk boards after they talked with the expert [physicist or a parent] . . . the pictures of their designs in the paper. (Excerpt from interview with Mary, 05-20-11, p. 2)

Holly stated that how video records of her study-group discussion helped her in preparing questions for the next lesson because she could revisit their discussion by focusing on what they said, and then listen carefully to the details of their speech.

Sometimes, you can't always prepare the questions that you want to ask during the discussion. For me, I don't work like that. It is so important for me to listen to what they are saying so that [in the] next step, I can ask them, "Why do you think that?" or, "You think we should frame paintings, why do you think that?" . . . So video is helping a lot. I feel freer. I feel at ease because I know I am not going to miss anything because I am videotaping. . . . For me, it's like a fuel to go on to the next study group. They might have other ways to document—like writing down students' words. And I like watching. (Excerpt from interview with Holly, 04-06-11, p. 13)

In that way, she thought that displaying video files of students' discussion—along with other displays—during the culminating event, could show the process of group learning better than displaying products such as 3-D representation.

My group is more process. That's what documentation [display] is going to be. People might not see what our group did, but the whole thing about the art museum. The art show is the product of our groups because they are going to be the ones that say, "This can go in and this should not." That's what I have to be very attentive to, and what I am going to record with the recorder to catch their conversations. That is going to be what I will display as our process; instead of "we made a quilt or an interactive piece" (that other study groups will make). It's more than that. (Excerpt from interview with Holly, 03-16-11, pp. 14-15)

Understanding and misunderstanding. Understanding the concepts related to the project was another main focus that the teachers wanted to represent. The main value of what the students learned through the project was an overall increased level of understanding. Mary said that students' increased understanding did not mean assessing whether they knew the learned words. She focused on the process of their learning problem-solving skills and continuing to use this understanding for the next round of problem-solving—something that she thought could not be perceived through testing.

My goal for this particular group of children who are participating in that [interactive art group] are that they've increased understanding of how a plain works, how ramps work, and understanding of gravity; then, also construction is a part of what they can do to impact how that works and then we will have pulley element as well. But I want them to be trying to solve the problem with material handed before. . . . The other way of teaching would be just direct instruction to teach them about pulleys, ramp . . . so I can test them to see if they knew the words and demonstrated the understanding. But I don't think that's the valid way to be learning about that. . . . When it comes to understanding of concepts and things that they have to figure out, that problem-solving, I think you see it that through the process. So hopefully, when I choose the pictures for the whole story of the ramp from the beginning to the end, I hope that we are showing that they grew in their understanding of how those things worked and . . . I want them not to be afraid to give something to try. . . . I don't want them to be afraid of failure. I want them to value like, "Oh, that didn't work. Now we are trying something else." So far with this [the ball ramp], they are happy trying that. And won't that be incredible to see that disposition transfer the next problem-solving thing—"Remember? We tried this but didn't work; now we can transfer that disposition." (Excerpt from interview with Mary, 04-29-11, pp. 4-5)

Holly shared one instance that she observed during large-group time. Some of her study-group students explained to the whole class what curators do after the experts, curators visited the group. In this particular discussion, Mary led the whole group discussion, and Lauren typed the students' discussion. The following was the excerpt of student's words from Lauren.

- L: I went to the station because I saw a station, the station that looked like city. A curator talks to the guide.
 - M: I think I know what L was talking about.
 - A: A curator knows everything. He is basically the boss of the company.
 - E: They write the stuff down and they choose which art is going to be on display.
- (Excerpt from Lauren's typed record of the whole group discussion, 04-20-11, p. 1)

She thought that their explanation was accurate and made her realize how her study-group student understood that concept compared to the rest of the class. This was what she wanted to capture in videos that she planned to show at the culminating event.

This morning, I caught a little of their project discussion. They asked what a curator was. My group was raising their hands and they were explaining all these things that curators do. The other TA (who was leading the discussion) said, "That's not what curators do." I

had to say, “Yes, that’s what they do. We just interviewed them.” I had to say it twice and then she stopped. To me, I realized that how little my class knows, but how much my group knows now, and how valuable their information has become because now the entire class knows what a curator does just because my group explained. Their words were very simple—three words to describe curators and they did. L said that they write about art, and L said that a curator chooses art. That shows me that they understand what happened. For me, their comprehensive input, it was on. I think that’s something that I have to capture through video clips. (Excerpt from interview with Holly, 04-20-11, p. 6)

Interestingly, Lauren mentioned that she wanted to show misunderstanding and understanding of the concepts that her study group learned. She stated that by showing students’ previous confusion would be a way to show students’ learning about the project. The following excerpt shows what she thought to include in the documentation boards of her study group.

We are talking about *misconceptions* like the TV thing. I wanted to keep words that prove that we dispel that misconception so that they learned that it wasn’t really the truth. Things that in the beginning, they had questions. . . . So on one slide, just their questions for the expert because that shows the ideas that they had already because that was before we had experience. And then throughout just an example of their understanding, I tried to get more focused on what the photograph is. I can start with their living photographs first and then went through words. So I made sure that the photographs that I had, had words to represent above them. We have pictures of those children playing with the Native American toys, so I made sure that I saved those words. (Excerpt from interview with Lauren, 05-16-11, p. 7)

Trial and error. Mary talked about capturing the moment of children’s trial-and-error experiences. Since her study group worked on building an interactive machine, exploring materials and systems to make their ideas work out was at the center of their learning. The main focus that she wanted to try to capture was the moments when students tried out various materials with their peers through photos, as well as getting their ideas through listening to their conversations. The following conversations reflect what Mary intended to represent in the documentation boards¹² of her study group.

¹² For the description of the documentation board for the interactive-art study group, see p. 49.

- JK: You took some of the pictures of them trying that out. What did you intend to capture?
- Mary: I want process. I want to be able to show all of their tries—things that worked or that didn't work [exploring different materials]. The first pictures that I took, they didn't have these sides on it, so of course balls moved off the sides. So we had to go to the recycle room and find something that might work. . . . I think the clay on there when they put on the top of that as well, . . . when they put the clay on top as well that really stabilizes. Mostly, I wanted to show the progress of children's ideas. . . . their original designs and what they did to get to the next direction. Trial and error is the major part of what we do.
- JK: Why did you choose these specific designs?
- Mary: Because it is what they actually drew. And they were very representative of the group. Then, this was kind of in the beginning. The only thing that they started with was a peg board. They chose that because this was a peg board. They've tried different things about pencils, clays. This shows that they were doing their work on the peg board. These were the experts that they worked with and the texts go with them. And revisiting their plans. So when the other expert came, they showed him their plans since "I can see what you try to do here." She said, "We are running into a problem here, how can we add onto that?" (Excerpt from interview with Mary, 04-29-11, pp. 3-4)

The teachers' emphasis on the progress of children's trial and error approaches and their levels of understanding or misunderstanding by means of taking photos, recording the students' narratives, and the students' drawings, were all represented as a story of the project process on the documentation boards. Mary's focus on documenting "process" continued throughout the interviews. In her last interview when she thought of the goals that she would like to continue working on, her main question was how to be more deliberate about the recording process.

I'm thinking about documentation during the project; thinking of being more deliberate about that path, that process. Help me think about what I'm looking for. I'm looking for previous understanding or assumptions, looking for questions, their ideas to find answers, how they find the answers and representing them. Because here is . . . how they go about finding the answers like the ball ramp—there were many layers to that. (Excerpt from interview with Mary, 06-01-11, p. 4)

Children's interests. In the photos that Lauren took during the field trip to museum, I found images of objects in the museum. Lauren explained that the photos included the students'

interests in what they saw there. The reason for including their children's interests was that the photos would facilitate students' discussions by revisiting them, and she believed that those are the ones that children would share with their parents.

Things that children showed interests in were what I was hoping to capture in my documentation. I have still their drawing things and I made sure to capture photos of what they were drawing. So in the documentation, I have pictures of a dwelling and a picture that a child had drawn underneath it. . . . I wanted to make sure that I had pictures of things that children showed interest in, either for documentation purposes or for revisiting them to talk about the field trip. And like the children in the period clothing, everybody thought that was the coolest thing ever. So I'm sure when they were with their parents, they would be able to talk about that. . . . Because that's what they want to share; I'm picking out things that they think are cool because they are [the ones] who are leading and they are hopefully going to talk with their parents about what we did when they saw the pictures—hopefully. (Excerpt from interview with Lauren, 05-16-11, pp.5-6)

Students' engagement with learning. As I observed teachers' meetings, they seemed to talk more about students' behavioral issues than the project, even at times when they were supposed to talk about the project. Holly addressed this issue and talked about how video-recording would help students' behaviors in contexts that the teachers were hardly able to see otherwise. When I looked at some of her video transcripts, she included a description of some students' behaviors, her words about the students' behaviors, and her impressions of students' responses. For example, "M lies on floor" (Holly's description of a student's behavior), "because you're not focusing, because you are not listening what I just said" (Holly's words to a student), or "students seem bored or students don't focus" (Holly's impression of the group response to the lesson) (Excerpts from Holly's transcription of the study-group discussion, 04-07-11, pp. 1-4).

We are talking about how they dwelled so much on behavior issues during the meetings so that they didn't get to the project discussion at all. You can see that they are misbehaving, not sitting up or lying down or talking to each other. But I always get a response. If I need a response, I know that they are listening to me. . . . We were just so consumed with how well they sit and not if they are listening or not. . . . I see a pattern of

behavior in that video; I know next time to look for that. I've been noticing that E after 10 minutes, he's gone—he will turn out or start looking at the books. . . . I was always like [kept calling his name]. I have to be mindful of that from now on. I didn't notice it until now. The video showed me because I can't watch everyone during that time. . . . And then he interjects a lot. But his interjection is very well thought out. "Creation" . . . he was mixing the words together. You know that he was thinking about what the friend is saying. Without recording, teachers might think that he was interrupting. He was not. He wanted to understand what the friend was saying. It just helped me knowing that I am doing the right thing, knowing that I'm not harping on them for sitting straight and being quiet. (Excerpt from the interview with Holly, 04-06-11, p. 11-12)

Lauren also mentioned that some records can show students' level of attention to the work. For example, I observed that she was sharing one child's project journal with Mary. It included H's drawings from the field trip to the Native American museum. I asked why she showed the child's journal to Mary and what she said about it.

Because a lot of times, you think that he's not paying attention and he will draw things unrelated with what we are talking about. I felt that it was really significant that he drew what was actually there because a lot of times he's thinking about things that aren't what we are talking about right now. So I felt really proud of him that he did that. It made me really pleased that he was paying close attention and he captured what was actually on the wall; instead of like random objects that are not what we are discussing. I want him to see that so he will see that's something that I hit and feel proud about. . . . That's a good way to tell somebody that's what you should do. (Excerpt from interview with Lauren, 05-16-11, p. 9)

Lauren, however, showed mixed feelings about students' records. While experts visited Lauren's study group (April 27, 2011), the students were recording in their project journal notebooks what they were learning from the experts. In the middle of the conversation, Lauren stopped the experts, saying to them, "I will collect (the notebooks) so that they can listen to you." She stopped the students from drawing and took away their project notebooks. In a later interview, I asked about why she did that.

I'm still torn like deciding to take them away because they seem to get distracted by them [the project journal notebooks] but at the same I know that some of those kids really focused on what they were saying while drawing. We have to negotiate that for the future; whether we do the notes while they are talking or we listen and reflect back and

do that. . . . Some of them were drawing dragons. That's why I did it. . . . I thought that it would be better to have them listening and paying attention to the saying because they'd know that information instead of missing something that is construed to be what they have in their minds. . . . In the future, we are going to talk about it—what's in here is what we are hearing about and make sure that you are really thoughtful about what you are putting here because the information in here is what we are going to be using to create our exhibits. (Excerpt from interview with Lauren, 04-27-11, p. 2)

Holly mentioned that video-recording helped her understanding the process of developing children's discussion. In the video, Holly laid out students' artwork on the floor. L and N came over while others were working on painting the art gallery wall. Their jobs were to choose some of their friends' artwork to display in their art gallery. In an interview, she discussed what she found about the two boys' collaborative thought processes during the conversation.

It was interesting because they didn't really talk at first while they were grouping it. N put similar ones into a pile. M was very systematic. He started making a grid of paintings. He made a grid of other paintings. He put a grid of drawings. The drawings were in the middle and the paintings were surrounding them. Then, I was asking them, "Why did you pick these?" N was talking and he just looked at M. I guess it is to see [whether] he agreed or not. In that instance, they did [agree]. So it was interesting to see how they grouped it together and how they began to collaborate in the middle when I asked them to. . . . I'm thinking of why they did that or if that is natural? I think it is. You work on your own until someone says, "Why do you think that?" they are like, "We think . . . wait a minute. I didn't even talk to my partner." They started talking to each other in the middle. M's support gave N more confidence in talking about why they chose those pieces and why they grouped them together in the way they did, like drawings and paintings. After L said, "Yeah, I agree with you. This should be drawings and these should be paintings," N started explaining, "Yeah because this is a drawing. This is a scribbled art." He validated N's words. (Excerpt from interview with Holly, 04-27-11, p. 9)

Students' involvement in other class activities. During choice time in the morning and afternoon, the teachers walked around the classrooms holding the camera in their hands. Almost every day, the teachers took pictures of the students engaged in their given choice activities. From the photos in the Webgal book and my observations, the main content of the pictures—other than project-related activities—were created objects that could not be saved, such as three-

dimensional structures made with pattern blocks or boxes and junk. These three-dimensional structures were made when they were playing with puzzles or board games with their peers, or when they worked collaboratively. These photos were used selectively to be included in newsletters or portfolios.

There were several school or classroom events, such as the Physics Van, students' birthday events, field trips, and outsiders' visits to the class. The teachers recorded these events with photos and videos. Holly stated the purpose of recording the classroom events was to show the students' engagement.

First I want to capture their experiences and their excitement because I think that that's valuable. It shows that they were engaged. I just want the parents to see that we are showing them different things. I want them to see that we are giving the kids opportunities to experience and explore physics. Even if even it's short [45 minutes], I think that's fine because they are learning anyway. (Excerpt from interview with Holly, 04-20-11, p. 11)

I found that only a few photos were shared with students and parents—mostly in newsletters or on the website. Mary reasoned that those photos were simply to communicate with the family about what was going on in the class—not for creating documentation boards or portfolios. I suggested other ideas about sharing those photos with the students to talk about recorded context with them—for example, making a wall of classroom events or class books. Mary welcomed these ideas¹³.

JK: I saw a lot of photos of those special events in the Webgal book. I wondered how you could use all these great photos more.

Mary: Yeah. Right. Classroom book or something like that. That's good. It would be great to have collaborative books where they are giving back information about the Physics Van. It's really good for me to think about that. I wish that we [would] have so much more time [to think about how to use those photos]. It always comes down to that. (Excerpt from interview with Mary, 04-29-11, p. 5)

¹³ For the conversation with me and Holly about this, see pp. 109-110.

What Did Documentation Mean to Teachers?

In thinking back on the recordings and putting them together, the teachers were able to use records and displays for various purposes: to see students' growth, to promote students' learning, to develop lessons, to use documentation as a self-study tool, and ultimately to share the information with audiences.

See individual growth. Individual students' growth was important for the teachers to think about. The teachers' understanding of students' growth in different learning areas, through the use of portfolios, was shared mainly with the students' parents at parent-teacher conferences. The teachers talked about seeing individual children's growth through different records and displays. I asked Mary following up on a point that Holly made, namely, "How to show that they learned something—not just what they did?" Mary emphasized seeing students' growth through their conversations:

That's capturing the conversation, I think. That was the one of the things that one of the visitors from Thailand was asking: "How do you assess—they were talking particularly about this [the ball ramp structure]—there is learning going on?" . . . I really hope to be able to capture to show their assessment is "trial and error"—They've done it this way and tried something else. Also, this is also something that I need to grow is capturing more particular words, their own words. Like today O said, "Look, how well this works, I put a lot of clay on the bottom and a lot of clay on the top." She could talk about why that held pencil up. That particular demonstrates some increased understanding because what they first tried was something not working. (Excerpt from interview with Mary, 04-29-11, p. 4)

When Holly talked about video clips of her study-group discussion one day, she described how some students whom she had in the preschool room had grown in their thinking:

L¹⁴ is growing so much. Do you [JK] remember how he would not share things last year and he was stubborn? In the videos, it is always him or someone else. He was always like, "I don't think so. No." I always said, "Why L? Why do you think so?" And he always gave me answers and he always has reasons why he doesn't agree or he thinks so.

¹⁴ For the excerpt of Holly's conversation with L's mom at the parent-teacher conference, see pp. 89.

He is seriously thinking. You can see there is growth there. Even M, I feel that it's been so awesome to see them last year and this year. It's like night and day. M is getting super smart. . . . Their motivation of inquiring has growth. . . . It's been exploding. They always have been asking me why. They always have been asking, "What is this?" Or "Why do you think? We have to think about." Even that kind of question, I think is important for them to know: "Why am I in a study group right now?" I started off the study group, saying, "We are the art museum study group. We are the one that is going to plan the art show and we are going to think about what's going up there." Immediately, they go like, "We can do this, we can do this. . . ." I used my laptop and camera. I will give you one video clip. . . . It's exciting when you do see. Oh my gosh! They are thinking! (Excerpt from interview with Holly, 04-06-11, pp. 1-4)

Promote students' engagement. Lauren thought that having students record their own or their friends' work could get the students' engaged in their own learning. She mentioned one boy in her study group who she thought was not engaged in group discussions. She described her difficulty recording while she was leading a group discussion without another adult's help. She thought that a student could be an extra help in recording their group work; at the same time, it would get students involved in their own learning.

JK: Can you ask the student teacher to take pictures for you?

Lauren: You can't because one who's in there specifically is working with one individual . . . to help the one individual child. Maybe actually that might be a good bridge for him so he's, like, involved. He can have a job with her and work together to take pictures.

JK: That's a good idea.

Lauren: Yeah. That's a good idea because I do want to include him more, but he's not going to verbally communicate really with the group, but I've read that for children with autism that's a good way to bridge that gap. That would be a good way to try that. I find that it's hard to do things like documenting things like that when you are the only grown-up. It's just hard. (Excerpt from interview with Lauren, 03-04-11, p. 3)

She also thought that letting the students know that teachers were recording their words or work could help students' focus on what they are doing because they should know why this is being done. For example, I observed Lauren typing a whole group discussion about the project. In the middle of the discussion, the students became a little too loud. Lauren stopped the group

time and said, “I’m typing up what you are saying because this is important. If you keep talking, I can’t hear your words. I want to type exactly what you say. I want to hear everybody’s words” (Excerpt from field note of morning large-group time, 05-05-11). In a later interview, I asked Lauren why she stopped the group discussion and said that to the students. She said that reminding the students that the teacher was recording would help the students become more focused.

I felt like instead of telling them be quiet, I like, in general, I think that children listen better if they actually know the reasons. As a parent and as a teacher, I feel like explaining: instead of “Be quiet. We are on the carpet,” [I said] “I need to hear your voice because I need to type your words.” So they understood what was going on. . . . I don’t know if we really discussed that much—if they understand why I’m looking at the computer, I’m not checking my email. I’m writing down what you are saying. I’m really paying attention, but if I can’t hear you, I can’t write that down. So I think that they were quieting down when I said that. Instead of making it be about being quiet. (Excerpt from interview with Lauren, 05-05-11, p. 2)

Guide lessons. Because the project was developed through students’ inquiries, records of the project process were considered important data for the teachers to guide where to go next. Holly saw records as a “road map” guiding her lesson. She referred mainly to video clips of the study-group discussion.

This year I’m daily preparing. Nightly I’m thinking about what I am going to do the next day while I’m watching the videos. That makes me take a time out to think about what I should do next. I think that it’s more like a road map. I need that structure and the kids are providing it. (Excerpt from interview with Holly, 04-27-11, p. 5)

Mary stated that documentation would help support students to investigate more deeply. She emphasized documentation as a support for students’ learning and teachers’ plans.

I want to go back to the documentation. . . . [It is] important to me. I want to be able to use portfolios for showing growth, or not—Documentation [boards] can show areas that need to improve or need to focus. And not only to tell stories of a project, but what I really want to do is to help it go deeper so children are actually able to investigate deep. . . . So for example, when we did “prairie,” the children who maintained the prairie

dogs even though the experts came and said they didn't and we read books saying they didn't. But they maintained that they did. We were able to go back to their drawings and their words comparing things. . . . So that's what I'm meaning to support deeper investigation that they can really. . . . It's not just [a story]. And I would like for recorded conversation, photos, and videos to help me inform my planning. (Excerpt from interview with Mary, 02-22-11, p. 7)

Think about teaching. Interestingly, Holly, as a master's student at the university, was taking an Action Research class during the research period. As this class project she collected her data through various records: photos, her lesson plans, journals and so on. She also recorded videos of herself teaching. She explained the meaning of recording herself as a way of self-reflection and self-study:

It's a self-reflection and necessary that we need to do. . . . I'm curious. It's about improvement. Self-study is more about reflection and is an evaluation of how you are doing right now. . . . Because I will find myself really grouchy. I will be affected by them not listening to me. I just want to see how affective I am. Is there a reason why they are not listening to me? Is there a reason why I am not being heard by the kids? Is that because I am not using the right language and right strategies? I am really excited about that because that means a lot of new ideas. (Excerpt from interview with Holly, 03-16-11, p. 16)

I observed her setting up two laptop computers for her study group—one angled at her and the other at the students (04-06-11). Afterward she recorded a series of her teaching, and she shared her findings about herself as a teacher. As she mentioned in her planning, her focus in this self-study was her affect during lessons and how that influenced her interaction with the students. Through this video reflection, she felt that she gained confidence about her teaching.

I don't want sound cocky. I'm pretty good at teaching. I was looking for a lot of problems and focusing on, "Am I being too rude or am I not giving enough attention to each student? Or what are the behavior problems?" . . . It was such a good conversation. . . . I wasn't that mean. I was firm. I didn't say things where they would not understand me. I was trying to be mindful about my language and my body language. One of negative things that I looked at was my face—I looked grumpy and tired. That was partially because I wasn't feeling well. In the future, I need to try and practice being more welcoming and happy. I feel good about it. I really hope that no one tells me otherwise. I

think and I believe that I am a good teacher. The videos are really helping me see that...and gain more confidence. . . . One of my questions that I had for myself in my research project—"How are my non-verbal cues affecting the kids?" I don't know if that's affecting them or not. I know that they all know that I love them. But when I looked at the video, it really made me ask, "Why do I look like that?" because I know that I'm enjoying myself teaching. I know maybe naturally that I'm not a happy-looking person. But still I should try [to look happier]. Even when I looked at my baby pictures, I don't look happy in there. (Excerpt from interview with Holly, 04-10-11, p. 3)

Share with others. Sharing with others was main purpose of the documentation boards and portfolios. Because this school is a lab school, visitors from outside of the school, including from other countries were also target audiences. The teachers attended educational conferences for the purpose of disseminating information to other educators. The teachers mentioned that their main audiences were families and students. The most important sharing moments with the parents were at parent-teacher conferences and culminating events. In particular, all the teachers agreed that they wanted to make documentation benefit the students.

In general, the teachers thought that sharing through records and displays with others had significant meaning. Lauren articulated the significance of sharing to build a learning community in the classroom:

I want the first and foremost, for us to be a community, for us to share ideas and be really confident around our peers, to feel comfortable with sharing what we think, knowing that we are not going to judge. Then, when we do our things independently and when we share them, if they have their individual books, they will be reading them to the class, their peers, then they will know that they are safe. I feel like especially, with that group, like I said, there are the streams, you are going to be a super-good speller and be confident and have a hard time not sharing them; and there are those who are feeling shy and they will feel uncomfortable. I want to come together so that we are all wonderful. We all have different strengths. (Excerpt from interview with Lauren, 05-16-11, p. 3)

Holly stated that sharing makes portfolios come alive. She thought that the portfolio in itself would have little meaning for the parents until the teachers discussed it with them. The portfolio itself is cold; it becomes warm when people talk about that so that they connected it.

I think that that's more a two-part process. Like, you put artifacts in the portfolio. It just becomes one hard artifact. So the purpose of the conference is to have a personal conversation with that parent and make that personal connection with that artifact. You can look at the paper and say, "That's a nice picture," like you said, but if you get the context behind the pictures, even though you have context in that paragraph, it is still a hard artifact and still cold until you talk about it. And then it becomes warm. It becomes real and it becomes a part of process of "this is how your child grew this year." Anyone can look through portfolios, but they are not going to be connected to it until the teacher tells them what this means. (Excerpt from interview with Holly, 08-05-11, p. 6)

With parents. The main audience for sharing displays was the students' parents. The teachers shared documentation with the students' parents in several situations. The teachers shared information about what was going on in the classroom through a newsletter and website. I mentioned parent-teacher conferences above. The school held a culminating event once a semester. During the semester in which the research took place, the school simultaneously had a culminating event and art show in the local museum in order to share both with parents as well as the community.

At the culminating event. The culminating events showed the parents what the students and teachers did during the semester. As noted above during the semester the research took place (spring of 2011), the school held the culminating event and the art show at a local museum for two days. Mary mentioned having a culminating event outside of the school helped the parents concentrate on the documentation boards. I also shared my impression about this type of culminating event—namely, that the parents were able to look at the entire group's work rather than solely that of their own children.

Mary: One mother came back the next day. She said, "I really wanted to have some time in quiet to read all of the documentation." That was incredible. I saw people reading it and people said to me, "Thank you for taking all the time to put them together. It really explains what's going on." I think that having an art show at the same time helped people to spread out and really look at the documentation boards in a different way. . . . Usually, our culminating event is like half an hour at the end of the day. They can come back another time and looked at these, but it

was too fast and too cramped together to really focus well. It is like when we go to the presentation and give them time before and after the presentation just to look at it. They really read them. Here they are really looking at the arts and they really stopped.

JK: So you saw that the parents' responses are different.

Mary: Yeah. And it looked so good.

JK: This is my impression, when you had a culminating event in the classroom, parents are focusing on their own children's works, like, "Where is your work? Let's take pictures of yours." I felt that this time, they really saw the whole thing, the whole group work.

Mary: Yeah, right. The whole process. (Excerpt from interview with Mary, 05-20-11, p. 6)

At parent-teacher conferences. Parent-teacher conferences marked the first time that teachers shared individual student's works with their parents. Each conference lasted 30 minutes (throughout the last week of May). Mary, the head teacher, led the conferences. The two assistant teachers (Holly and Lauren) attended if they chose to. Holly joined three conferences of her study-group students. Before each conference, Mary laid out the students' portfolios and art folders on the table in the back room. While the parents were waiting for their turns in another room, they were able to look through the materials.

The student-made artifacts provided major data for the teachers to use to talk about the students' growth and learning. Mary thought that parents would want to have photos of their students but found they looked more at artifacts than photos during the conferences. I suggested using the Webgal book that contained all the photos for the year, and have the book out with their children's portfolios where the parents could see it, too.

JK: At the parent-teacher conferences, what do you want to focus on showing the parents?

Mary: Growth. Within those five domains that we report on, I can show growth in literacy and math and I can show growth when we are talking about the project and activity time work. . . . For children who are strong, . . . it's just pointing that area of strength and how we hope that can travel along with them particular way. . . . I found that during the conferences, we don't use those [photos]. They come in and look at them ahead of time, but during the conference I don't, and they don't

need to see [photos] while I'm talking. I've tried to do that but it's more of distraction.

JK: So parents are more concerned about (Mary: what's coming up.) This is just my idea, but you can just use the Webgal book. If some parents come earlier, they can look through the Webgal.

Mary: Oh, so we don't have to print that [photos] out. (She wrote down what JK said.) (Excerpt from interview with Mary, 04-21-11, p. 9)

While Mary was talking with me about the parent-teacher conferences, she told her student teacher (ST) about how the teacher-parent conferences would proceed. She stressed that they would emphasize positive aspects of each child during their conference.

Mary: Specific about where they are; assessing math or reading. For the conference themselves, people just want to hear positive things; way more than they want to look through portfolios.

ST: If we have concerns, I mean nothing specific in my mind,

Mary: If we have concerns, we've already spoken with them. (Excerpt from interview with Mary, 05-10-11, p. 3)

The following excerpt shows conversations Mary and the parent had while looking in the students' portfolios at the student's designs of the ball ramp that Mary's study group built. The mom took the drawing designs out of the portfolio and she started a conversation about the child's study-group work. She did not realize that her child was in an interactive study-group until she actually saw the designs. Mary talked about the child's thinking and contribution to the study group as shown by the designs. The conversation about the particular drawings lasted thirteen minutes.

(The mother is looking through the project file. She took out O's three ball ramp structure designs.)

Mom: Oh, she was in the ramp and ball construction [group]?

Mary: She was. She was incredible. Her ability to draw designs to conceptualize and draw designs.

Mom: I saw that! I had no idea that she was in the study group for it. And I said that because she didn't talk about it.

Mary: She didn't? (laughing)

- Mom: No. She didn't tell me. But she did start saying . . . a month before the culminating event, she would start looking at it and go like. . . "I can't imagine how they make that." I was like. . . "Where is this coming from, O?" because she said about a couple of things like pop cans, a certain things that she said, "I can look at this and imagine how they made it." I said, "Really? Tell me." And so she described how she thought they made it.
- Mary: She is incredible. Just to see hers [design drawing] because it was a series of solving problems. They saw the ball ramp on the music video—Roof Goldberg thing. They really wanted to do that, but they wanted the ball back up to the top. Layer upon layer of trying something that didn't work and trying something else. They revisited and watched the video again and took notes. They can describe this whole poly system with the buckets.
- Mom: I know. This [her design drawing] is cool. . . .
- Mary: She adds so much to the class. She is confident about sharing her ideas. I loved the picture of her They interviewed one mom who is a physicist about some simple machine ideas. She was absorbing all this. She was one of the first children who went to the chart board and drew her idea for the design. She is a thinker.
(Excerpt from conversation at O's parent-teacher conference, 05-25-11, pp. 1-2)

At J's conference, the mom said that she realized that he actually cares about colors by looking through the art portfolio at the conference.

- (The mom is looking at her artwork. She turns and says to JK.)
- Mom: Do you remember that we talked about at the culminating event that J does not care about colors? After I saw this [art portfolio], I thought you were right. I'm glad to see that he is actually doing this."
(Mary comes back and she is going through the art folder. She takes out one framed paint— George O'Keeffe.)
- Mary: Look at this picture, I would buy it!
- Mom: I know. I've just talked about this with JK. I said that I never thought that JM uses colors but I can see that! (Excerpt from observation of J's parent-teacher conference, 05-24-11, pp. 1-2)

Holly attended some of the conferences for the students whom she had in her study group. Mary let Holly lead the conferences. Mary used students' artifacts, photos, transition forms (descriptive explanation of a child's growth) and other visual data that she included in each portfolio to talk about the children. For example, L's mom was concerned about his delayed speech. Her main question was whether his speech delay prevented him expressing himself.

Although Holly did not show video clips to the mother at that moment, she referred to the video clip as an evidence of L's communication skill, saying that his thinking skills were not hindered by his speech.

Holly: I think comparing from preschool because I had him once for one semester. He really grew. He grew a lot. Last year . . . he was shy. I think the part of it was because of speech. I feel like this year. . . . I think he just learned not to care and he shared so much. Like if you get a chance to read or hear some of the discussion that I am going to include in your DVD of our study-group material. You will hear that he questioned a lot during the interview and he asked a lot of profound questions, so that when it was over, the docent and the curator were like, "What grade they were again?" He asked so many questions like (showing the transition form). . . . I mentioned that he asked, "How do the arts get to the museum?" People don't really think about that. Even adults don't really think about that. They are like, "Oh, maybe I just go to a museum and I just look at arts." But they [the experts] were thinking about the whole creative process. He was taken in, "How does it get there" They talked about shipping the arts and how they package. All these little things show that so many people play into a museum and that's what he took away from it.

Mom: So the actual speech was not anything to hinder him?

Holly: No way.

Mom: Because I had a huge concern like . . . doesn't seem that he is not confident because of it?

Holly: No way.

Mom: That's great. That was my major concern the last couple of years.

Mary: To hear Holly's saying, "Shy." This is not a shy child! He contributed to all of the discussions. . . . I don't see that it's in his way. It's great that you are getting that therapy, now.

Mom: That's good to hear. (Excerpt from conversation at L's Parent-teacher conference, 05-24-11, pp. 1-2)

In L's transition form, the project description says,

From the very first meeting of art museum study group, L was actively engaged in the investigation. . . . L's inquisitiveness led him to discoveries about many things including the way curators choose specific art pieces for different exhibits and how galleries are grouped in themes. During the interview with the docent and curator, L asked how the art gets to the museum. After the interview, both the docent and curator were surprised by the level of depth in questioning that he brought to the discussion. (Excerpt from L's transition form)

Another example: Holly attended P's conference. P's parents helped set up the culminating event at the museum. Holly explained P's interests in the project because of the parents' involvement in the project and gave them a set of P's photos related to the project.

(Holly takes some photos out of the project folder.)

Holly: Last year [she had P in the preschool room for her study group] . . . there was times when it was hard for her to focus, she was like "I'm not interested in and I'm just going to leave." . . . I felt like she was engaged [in the project] and she was connected because of your work and your husband's involvement. I thought that it was awesome. In the project folder, I put some pictures for you guys to take. It was my memory story that I started off with. It was when P showed me her dad's speaker box. I showed those pictures at the very first meeting. I think that's what made her click. (Mom: because it was personal). That was her memory story so after I shared mine, I had the kids do their own and that was her drawing. It is just from there. . . . She was the one that always like, "When does the study group meet? We got to meet now." That was amazing.

Mom: Great to hear.

Holly: And I included on here [the transition form] that her major contribution was about "eye-level." I think her and one another student focused on the fact that it was going to be a majority of kids. "It needs to be our eye-level." That is the reason why I put the bust so low. It was P's idea. She wanted to make sure that people could see from the top to the sides and everywhere. That's why I chose to have those low pedestals. It really was our study group that looked at it from their minds and they thought about what they need to do. . . . That's how became our culminating event. You can tell that they were really proud of. P was so proud of everything.

Mom: She made me call 10 different people to ask to come to the culminating event.

Holly: It was really important to her. It really was. It was a special connection for her. It shows in her writing that we did in our project work. It shows in the drawings and interviews that we conducted. She really blossomed a lot from the last year.
(Excerpt from the conversation with Holly and Mom at P's 05-24-11, pp. 1-2)

In P's transition form, the project description says,

P's inquisitiveness led her to discoveries about many things, including the way curators choose specific art pieces for different exhibits and how galleries are grouped in themes. . . . P demonstrated an understanding of the importance of doing research through both first-and second-hand investigations and thoroughly enjoyed taking charge in the Art Show by making sure that the busts were included at a low eye-level. (Excerpt from P's Transition form)

Parents' written responses. At the end of the semester, usually after the culminating event, the school sent out a questionnaire to the parents to get their responses about the semester's project: (a) Did you see evidence of your child's interest in the museum project (involvement in or excitement about the field trips, classroom activities, products, etc.); (b) did your child talk about any aspect of the topic away from school and did the conversation or statements reveal new knowledge about the topic; and (c) did your child like this topic?

The written responses were intended to show parent's views of their children's learning experiences, and teachers reflect on them and incorporate them into plans for their next project. The parents' comments were similar to what they shared with the teachers at parent-teacher conferences.

In my last interview with Mary, I asked her about what she thought about the parents' responses. She searched through the comments piled in the table. She took out the paper with comments by O's parents. When I asked her about how she used these responses, she sighed and thought for a while. She stated that getting parents' responses was a practice they had done for years, and that she did not really think critically about the questions and ways to use them. She said that she would continue thinking about how to use them. The following excerpt shows O's parents' written responses and Mary's responses to them.

(Mary is reading through the parents' responses and reading those of O's parents.
The written responses included)

- (a) O talked about the ball run and was very excited about the museum visit.
- (b) O loved to point out objects to me and describe how she believed they were made. My favorite conversation was when she explained to my father how a pulley system works.
- (c) I believe O enjoyed this project very much. She seemed to gain confidence in her ideas and became eager to share her thoughts.

Mary: This is interesting because these three [answers] are about ball runs. I think this is vivid. This is true. O gained so much confidence in her ideas and expressing them. She is the youngest in the class, but she is right about that particular topic.

JK: Could you tell me how do you use this one? What's the purpose of collecting parents' responses?

Mary: We've used the same questions for years and years. This is one of things that we do because we always did. . . . Not all of this gives me information, but when they say that it extends to home that they are doing the activity or something about it at home, or like O said, she was able to describe how the pulley system works to her grandfather; those pieces of information helped me inform what I would lead them to do in the future, as I suppose. At this point, we put them into the white book. I do think that we need to rethink what we really are asking because "Did your child like this topic?" . . . If they say, no, I'm not sure if they really informed me of anything. For everybody saying that they really like going to a museum—that's really important. (Excerpt from interview with Mary, 06-01-11, p. 7)

With the community. Because the school is a university-affiliated lab school, visitors were always welcome to look around the school. The school events were open to the public. The school tried to share what the students did with the local community. This semester, the school had a two-day-long culminating event (combined with an art show) at a local museum.

The local newspaper and TV station visited the school's culminating event. The director made a phone call to the local newspaper. Holly's group of students went to the museum ahead of time, and the cameraman took a picture of them hanging their artwork on a wall. On the day of the culminating event, Holly informed me that one local TV program broadcast this event. Some children were interviewed. Holly explained her impression of the student's sharing their work with the local community:

Holly: I don't know where the change of action started, but I know for sure that the director contacted the newspaper and just got the word out. They gave us an option of a photo opportunity. The newspaper company said, "Since we are writing the story, if you want (we can take) pictures of kids hanging the artwork. Then we will come." That was a last-minute thing. . . . So the two kids were interviewed. I heard that the boy (who was interviewed) did a great job—lots of talking.

JK: So how do you think that affects children?

Holly: In terms of attitudes, I think B [the interviewed boy] was affected the most because he was very proud of it. He got to share with the group afterwards what he did. I asked him, "What did you do?" He told the whole class, "I was interviewed, and I explained 'trial and error.'" He used all the vocabulary. I said,

“Good job, B!” I was very proud of him, too. They were just really excited because it was in a museum. (Excerpt from interview with Holly, 05-20-11, pp. 13-14)

With other teachers. When I asked the teachers about sharing displays, they all focused on sharing with children and parents, and possibly with outside visitors. When I mentioned sharing documentation with their teaching colleagues, they did not feel that they did enough sharing of that and Mary said that my question was interesting and provided something new for her to think about.

JK: You talked about communicating with children and parents and other people. What about other teachers?

Mary: On a team? I’m not sure that we are using documentation to inform our planning. That’s interesting. We revisit, for example, today we talked about study group. We revisited drawing and writing that the children did about what we want to put in their own museums. Looking at those again and seeing grouping of children’s categorizing those pictures. I guess we did that. That’s interesting to think about what we [teachers] are really doing [together]. We communicate when we are doing documentation for portfolios. (Excerpt from interview with Mary, 02-22-11, p. 8)

As she mentioned, throughout the observations of teachers’ meetings, I rarely saw the teachers use concrete records or displays to talk about project process, students, or other class issues. When the time for the teacher-parent conference and the culminating event and art show of the semester approached, they began talking about ideas of how to work on students’ portfolios, documentation boards, and other visual representations to be presented at each event. Still, records that they made throughout the semester were not brought to show each other; instead, they talked about what they would do and how they would make their final displays.

After the first teachers’ meetings that I observed, Holly expressed this concern:

I think we need to think it through a little bit more. We got really good advice, and I don’t want to say, direction, just ideas. That was helpful. . . . I think the problem of the museum is that like you are saying that the culminating event is a museum. We are

creating a museum of a museum. It's really a big topic for me. . . . When I think about process, I think more about timeline or a collection of pictures to describe what happened, or what was learned. The whole fact that we are doing it in museum makes it more complicated in my mind. (Excerpt from interview with Holly, 03-10-11, p. 9)

Connection. The teachers recognized that records sometimes helped fill the gap among the teachers. They mentioned the Webgal book—the collection of photos of each day—that could help them see each other's work with the students when they were not present.

Lauren mentioned that the Webgal book helped her catch up with Holly about what the students were doing:

I try to look through the pictures quite often. One of the reasons is because in the afternoon, I'm not there. I get to see what's going on in the afternoon if I look at the pictures of what's going on. (Excerpt from interview with Lauren, 02-28-11, p. 8)

Holly also stated that the Webgal book helped her connect to what happened in the morning.

Because I haven't had time to discuss the projects with the kids because I am there in the afternoon. I am hoping that with this, I can look through the Webgal and see what they did in the morning and in the afternoon, bring it back to them, and ask them what happened here. So that I can be connected, too. We only have so much time to talk altogether; I can't say what happened, and they explained to me the whole discussion. It's not possible. It would be nice. (Excerpt from interview with Holly, 02-24-11, p. 7)

Disconnection. The teachers used records to connect to each other's work. They also, especially Lauren and Holly, expressed concerns about their communication with one another—that is, what each teacher did with the students in the morning and in the afternoon.

Another example of Holly's concern: The project time for the large-group discussion was scheduled in the morning. At project group time the students shared what each study group had been doing with other groups. In earlier interviews, Holly said that she had a hard time catching up with what was going on in that meeting. She used some of the written records that the

teachers made as a reference, but she felt that the records were not kept consistently all the time.

She thought that the written records were not detailed enough to give her information.

I've told them a few times already that I need someone to write it down, and the former director stressed that very much last year. I thought that that was so helpful. But nobody transcribes what the kids say. There is such a huge disconnection between the morning and afternoon teaching assistants. She knows more than I do [what happens in the morning]. . . . Pretty much what I try to do is to look at their Post-it notes to see what the kids say. They still lack [knowledge] of how the kids get to that point that was written down on the Post-its. (Excerpt from the interview with Holly, 03-16-11, p. 10)

Lauren also mentioned that there was not enough connection with the other teachers (especially Holly) because their different working schedules.

We do not get enough time to collaborate. We didn't have a lunch supervisor until recently. . . . Mary and I will get time to talk, but Holly and I do not really see each other. That's hard on us. . . . I want to know what she's doing with the children and I want to know what experiences she's having. When someone has a hard time, I want to know about that and how she's helping them. . . . It's hard [for students] to share with somebody who you never see. It's hard to have a strong relationship with that person—which you need—if you don't see them. That's improving as we speak—like today, we got to spend some time together. (Excerpt from interview with Lauren, 02-28-11, p. 12)

Holly was the one who noted a disconnect between the teachers. She also observed that even though she initiated some activities, the other teachers needed to help her record and facilitate activities when she was not available. For example, she had a planned lesson, called collection, related to her study group. The students took a turn to bring their own collection to introduce and to share with their classmates. When they shared, they (with help of the teachers) were supposed to fill out questionnaire forms (both collectors and viewers). Holly extended this lesson to the entire class as morning and afternoon choice times. She video-recorded the class and took pictures of the students. Due to her schedule, sometimes she was able to be with the kids to record, but most of time she could not. She wished that other teachers would help her because it was not her job alone—it should be a collaborative effort.

Collaboration, isn't that the philosophy of our school? To be a team, and if you see someone needing help in that area, you pick it up. . . . I guess the reason why they are not tempted to do picture-taking—they think that that's not important and they think that I will do it. I'm hoping to email the other teachers to ask them to take pictures of the collection tomorrow. . . . Mary does help, and she is the one who sets up in the morning. I put the names on the little stand and put them somewhere. And if some things are not done, she will pick up where I kind of left off. But nobody will take pictures and nobody will record because that's all mine. The problem is that I'm still in another room, cleaning up math and helping the second choice by myself. I can't go to another room and leave them by themselves. (Excerpt from interview with Holly, 03-16-11, pp. 12-13)

At a teacher's meeting, Holly suggested that her team make notes to communicate with one another and to exchange one another's study-group dialogues to develop a comprehensive picture of the project.

JK: At the teacher's meeting, you talked about "teacher's note" to communicate. How did it go?

Holly: There hasn't been any. I asked about it [teachers' note] and emailed about it, but nobody responded back to me. When I took a note to my study group, I sent that to them. It's a study-group dialogue. I just thought that it is important for them to see where I am. I recently had another video that I've been recording. I will transcribe it tonight. I just did most of them today in the morning. I will just send it to them. . . . I feel like I've lost my status there a little bit. . . . I can email to Mary and share with her what's going on. But it's only through my eyes. . . . Even after talking about, "Please document, please write group discussion," nothing happened, even when I tried to give them an example or initiative. (Excerpt from interview with Holly, 04-06-11, p. 14)

Holly's initiatives. In spite of the disconnection between the teachers, as research time went by, especially when the culminating event approached (to prepare documentation boards and other displays, Holly's initiatives were recognized by the teachers. Holly began to take the lead in deciding what kind of formats the documentation boards of each study group would be and what content they would include on each board. She did the final touches on each board so that they would look the same. She decided where to display those boards, other students' artifacts, and projectors. She made an invitation pamphlet that showed a floor plan for visitors.

Mary agreed that Holly's initiative in creating documentation boards was helpful. Mary mentioned using a teacher like Holly as an *atelierista* like Reggio schools do. Her role led her to be outspoken as the culminating event approached. She also felt more responsible for making different kinds of displays.

JK: I saw the note about documentation ideas, and I heard that you made this. Could you tell me about this?

Holly: Yesterday we talked about art shows and the culminating event— It was like the teachers' meeting. We got something done. While she was talking, I typed out things that we are going to put out at the art show. I asked her to divide them among ourselves so that we can make sure it is done. That's what the columns are for (looking at the memo). Mary has a lot more because she claimed to do that. Those were her ideas. That's what we are all going to do for the culminating event.

JK: What types of documentation are you going to use?

Holly: Here is what I started and I showed it to them. I started grouping my ideas for displaying our documentation. I thought of a flow chart for each group then, we have essential ideas, introduction, and information. And field trips that we did together—other things that branched off the field trips and activities that we did together. . . . I'm thinking of making this chart to show how it's all connected together. (Excerpt from interview with Holly, 05-04-11, p. 10)

After the culminating event, she stated that she felt proud of taking initiative for creating the documentation boards. I showed her a picture of the K/1 documentation boards. She thought that the documentation boards communicated with viewers.

I felt so good about what we were showing because it looked good and people actually looked at it and read it. What I remember from last year, people didn't really look at it because it wasn't such a big deal. When we were taught that documentation is such a big deal, but people didn't look at it. That made me very upset. With the freedom to create what I wanted and to make a good design, obviously, people are going to look at it. Who couldn't? Pictures are big and writing was readable. It was an easy layout to look at and it looked professional. I just thought it was so good and I was so happy that we were able to get the big one single sheet boards because that just made such a huge difference [compared to] slides. That's for the classroom, not for the culminating event. I think that should be a standard from now on, but who knows? So I thought that our documentation this semester was amazing. (Excerpt from interview with Holly, 08-05-11, p. 9)

What Did Documentation Do for Students?

One of the goals that all the teachers mentioned was to do documentation useful for the children. The teachers thought that documentation boards were less for children than for adults such as visitors or parents. They said that the documentation boards were placed too high for the students to see. For example, Lauren mentioned this issue when she remembered the first time she had visited the school.

I'm not really into researchers, no offense [to JK]. . . . I think those [documentation boards in the hallways] should be on the floor. I think those are way up too high to see. I think those should be down so that the kids can see them. I think that the first time when I was here, I was visiting to see if my children would want to go to preschool. The first thing that I did was that I walked in and I was like, "What are all these things up in the air?" That's the first that I noticed. But I could be an extremist. I feel like, if we know this is the best practice to have artwork and their information displayed there, then we need to do it. We know that's the case. The researchers can look down. Researchers know that's the best practice. (Excerpt from interview with Lauren, 02-08-11, p. 5)

Holly emphasized students' awareness of and involvement in showing what they learned to others was a starting point of "documentation for children." The following excerpt shows her idea of documentation as a way to share and how she helped her math-group students to be aware of sharing their work with others as a form of displays.

(Her math-group students are talking about creating patterns.)

Holly: What's your idea of pattern?

L: triangle-square-triangle-square. Goes over and over again.

A: Heart-star-heart-star

Holly: What is that pattern? Does it always be shapes?

P: No, it can be cat-dog-cat-dog

H: Numbers and letters can be patterns.

Holly: How is that pattern?

H: abc 123 and abc 123

(After they discussed ideas of patterns, Holly takes the group to the hallway. She took students' work off the one of the display boards yesterday.)

Holly: Look at this board.

Children: It's blank.

Holly: Yes. I took some of your work off this board [display board] yesterday. We will design like patterning, as we talked about it right before. You can work with

others or your own work. We will put them up on this board. We are going to create art patterns about what we know about patterns. We are going to put our art pieces on the board so that everybody can see.

Children: What about the other one [board]?

Holly: We will change it later. I want you to look at this board now. How big is it? How many art pieces do you think we need? These are what I want you to think about for this board. (When the students are back, they started working on creating pattern art.) (Excerpt from observation of Holly's math group, 03-16-11, p. 2)

In a later interview, she discussed this process. She emphasized that students should think about ways to use their work to show their parents what they learned.

I want them to see that there is a product to math. They all liked it. I want them to be proud of it because most of the time, their math work just goes into their portfolios and they will never see it again or they just take it home. That's it. I think especially with pattern. It's an art. It's a math and an art! I just thought it would be nice to show them that you are working towards this and people are going to be looking at it. If a child had a hard time with patterns, I would ask them. I asked one student, "What would you show someone who didn't know patterns, how can you show them?" She chose the one that was the most clear and distinct pattern. I thought that was critical thinking. You are trying to teach somebody a pattern, and then, you are showing them that you are doing this to show a pattern. . . . Just thought of documentation; I didn't use the word "documentation" for them, but also I wanted them to know that their parents are going to see this. We are showing them what we are learning. I said that—we are showing people what we learned. That itself is documentation. . . . It's a fun way and a simple way to show people what they are doing. (Excerpt from interview with Holly, 03-16-11, p. 5)

Holly worked on creating pattern art as a part of her math-group activities and her study group work. This combined activity lasted more than a week. The students created individual pattern art, titled their work, and discussed one another's patterns to choose works for display. As a final stage, displaying the works on the wall, she had the students think about ways to display their work and the purpose for doing that. As she mentioned earlier, students' work, especially math work, was not shown to the students themselves or displayed because the teachers collected them and put them directly into portfolios.

Holly: My main thought overall of this is to show them that we display things in certain ways in special areas—with goals. I want to use the display boards like in a

context. With my study group, we are going to talk about the art museum. I want them to walk around the school and see other areas of display and talk about what's on that board and why. Because I wanted to focus on contexts and purposes and goals. . . because there is a purpose. In the art museum there is a vast amount of things that you can display at the art museum, but they are specific things, too—paintings, statues, and I think we are going to focus on that. I want to show them different examples. That's my main goal—to put things up on the board.

JK: Your goals are very incorporated into project and math.

Holly: This stuff comes up to my mind as I'm doing lesson planning. I feel like it needs to be more purposeful right now because there is not enough time. The culminating event is in two months. . . . I'm trying to make everything connected to it in some way. (Excerpt from interview with Holly, 03-16-11, p. 6)

The final display of pattern arts included each student's pattern works, their words on the meaning of pattern on sticky notes, and the small-group discussion of the meaning of the pattern.

The students' words about patterns written by Holly were as follows:

- L: A pattern is a path with shapes. ☐ ☐ ☐ ☐
- E: A pattern goes over and over again.
- M: A pattern goes step by step and it has to have an end.
- O: I agree with E.
- N: A pattern can be anything. ABABAB.
- P: A pattern can be mommy, daddy, mommy, daddy.

In a later interview, Holly explained how the students responded to their pattern work displayed on the wall. She mentioned that the students revisited the display board after it was completed.

I put them [the students' creations] up on the board. The red paper shows the examples of patterns. I brought back them to the board. Oh, my gosh! I wish I could videotape them. They were crazy, "Ooh, that's mine!" They were oohing and wowing. They went there. They were so surprised and happy and really proud. I thought, "This is your work." They felt really that it's up there. That shows a power of putting one up. Before I did that, I took one boy with me to the board and I showed him the board. I said to him, "With math class, we are going to come here and I am going to ask everybody to tell me one sentence about a pattern" [because this was a closure]. I wrote down his sentence on the purple paper. And I came back with everybody and they looked at their patterns. I asked them to give me one sentence about a pattern—what is a pattern. Everybody gave me one sentence and I wrote it down. Before that, I told them that just showing is not good

enough. You want to be able to tell people what it is. This is why we are writing it down. We wrote it down. I let them look at the works more closely. (Excerpt from interview with Holly, 04-06-11, pp. 9-10)

Being aware of documentation. Holly's view of "documentation for children" was clear throughout my observations. The students were aware of the meaning of being recorded. For example, during Holly's math group on 04-13-11, R mentioned that they should perform well since they are being recorded, and this recording would be shared with their families. The excerpt shows that the students thought of sharing with others.

(Holly is holding up the laptop on her knees. She is pointing out the words in the PowerPoint file. She gets children to read the objectives.)

1. Differences between sing a song to learn about the coins of the U.S.A.
2. Sing the song and record it.

(She then points at the lyrics that were placed on the wall. She reads the lyrics of the song twice as she points at each word. She plays the music and tells the children to sing along. She shows the paper coins that she prepared. Whenever children hear the part that each one has, they are supposed to raise the paper coin towards the video camera. Holly has children practice to make sure what they are supposed to look at or where they are to position themselves to be in the video. Children take a turn so that everybody has turns to practice. On the last try, Holly uses a computer to record the children's voices. Then, she plays it so that children can hear.)

E: Can you send it to the presidents?

Holly: Well . . . I don't know because all the presidents on the coins are dead. . . . Now I will record a video of your performance that we just practiced.

R: Wow. Then we should be good!

Holly: Yeah, you should be good so that we can video-record you.

R: Are you going to record it to DVD? If you can, we can watch that at home, if we can get copies!

Holly: We are going to make a movie. Maybe I can burn a DVD later so that your parents can watch this, too. Then, you should do really good. (Excerpt from observation of Holly's math group, 04-13-11, p. 2)

The next day this music video was shared during group time. Mary's math-group students were invited.

(Holly is setting up the computer. She is about to start the lesson with the music video that her group made yesterday. Then, Mary approaches her.)

- Mary: Are you guys going to watch the music video now? Can my group watch the video, too?
(Mary's group is standing and Holly's students are sitting on the carpet. L seems really excited to watch the video and he pets N's back and giggles.)
- N: I like the quarter part because I was part of quarter with L, too.
(Holly smiles at them and plays it.)
- Mary: It's really music! How did you do that?
- C: Did you really make the video?
- P: I remember that we made a music video of a measurement song when I was in the preschool room. (Excerpt from observation on 04-14-11, p. 1)

Sometimes the students came up with ideas on how to use the records that they and the teachers made. For example, Holly read to me a transcription of the video records from her study-group discussion. The child's idea was to make a movie of what the group said, to share with others.

One girl wants to show a video of what they are learning. (She reads the transcription.) "You did a great job. I am going to type up the words because it is important." She goes, "Why do you think that?" I said, "What you said is really important and it helps our group." Then, she says, "A movie can be another way to show what we talked about." So, I think that we will make a little movie of what they did or what they think is an art museum. It might be more like a philosophical. I think it would be interesting to show this side to people. (Excerpt from interview with Holly, 04-06-11, p. 6)

Sharing among students. The first group time was supposed to be for small-group discussion to discuss sign-in questions (mostly related to the project). The teachers recorded the students' discussions about the project. Mary gave thoughts about the purpose of sharing study-group discussion with the whole class.

- JK: I saw you writing down some of the students' words and you brought them back to the whole group discussion. Have you looked at their conversation?
- Mary: The notes that the student teacher wrote? I have not revisited that with them, but I intend to do that. Hopefully it will help them inform the discussion with the visitors on Monday.

- JK: From their conversation that you remember, what do you see from the small-group discussion to the whole group discussion?
- Mary: I noticed that one of the student's comments who are not in the study group, she was enthusiastic about speaking and sharing her ideas . . . it's very much like what she does. She repeats what somebody else had said. That used to annoy me, but I think that she's practicing that vocabulary and demonstrating her understanding, . . . trying that out like pulleys. So I see evidence of the children listening to one another. And again that built upon somebody else's ideas and . . . children who are in the group have already shared their previous experience, but not for the whole group saying, "I've seen . . ." to be able to share that. I think it's really important to just enhance the learning.
- JK: You said that you are going to intend to use that conversation for the expert's visit. How are you going to use that?
- Mary: Yeah. We've sent the expert a little bit of information that we are looking for and then, I want to be able to have those whole words and small-group words available so that they could say, "These are something that we already talked about," just to help them form their questions when the high school students are here. (Excerpt from interview with Mary, 04-29-11, p. 1)

In spite of the usefulness of recording the whole group discussion inspired by the small-group discussion, Mary felt that recorded discussions sometimes had no purpose, and she did not know how to use them.

Revisiting, so come back later and individuals will say, "I wrote down and you said this. Maybe add onto that." We could take a little more time that way because they do have incredible ideas. We do a lot of Post-it notes, but I don't know what to do with that and have it be purposeful. It's the goal to have that be purposeful. (She is writing down her thoughts.) (Excerpt from interview with Mary, 03-17-11, pp. 4-5)

Remembering what students learned. For her lesson for measurement, Holly used a music video of a measurement song that she worked on with preschoolers the previous year. She used this music video as an introduction to the lesson.

(Holly is playing a measurement song. Holly is playing the music video of the measurement song that the preschool school made last year. Three children currently in her study group also were in the music video.)

- J: Oh, I remember that song. We made it in preschool.
(P started singing along the song. The video ends.)
- Holly: Do you want to make your own music video? Maybe K/1 version of measurement song?

Children: Yeah! Cool!

A: Like we made the coin song?

P: I can have another measurement song. (Excerpt from an observation of Holly's math group, 05-04-11, p. 1)

In a later interview, she mentioned that music video would help them remember what they learned.

I was thinking about it because they probably would have a lot of fun because we did the coin song. I thought that it would be nice to have in a lay of videos in math because it would help them remember what they learned. They like singing the coin music video all the time when they remember it. It's like, "Yeah, we know that song." They sing it together. It was funny because they really liked the song in the beginning. After they saw the music video (PreK measurement song), they were really like, "It's really awesome!" I think that in terms of that, it would probably inspire them to remember what they learned. I'm thinking about the long-term and if they really do remember what rules are used for and if a clock measures time. (Excerpt from interview with Holly, 05-04-11, p. 4)

Revisiting with students. One frequent use of records that the teacher mentioned was "revisiting." In particular, revisiting their ideas was emphasized by all the teachers. Having the students look at the records of what they did, said, or created, furthered students' questions and discussion. It helped the teachers understanding the student's growth. Mary used the word "revisiting" for the students' discussions and ideas about the next step of the project. She explained:

JK: About your written documentation about the museum that you recorded today. How are you going to use that?

Mary: Right now it's just to get really their minds because several of them actually visited already. But for the others, what they are hoping to see. We can revisit that to find out if they actually saw that.

JK: Is that how you usually use this kind of written documentation? I saw some written documentation on the wall.

Mary: Lots of different ways. They are actually making predictions and the rationales for what they are going to see. Then we would make sorting into categories, things that either they've seen or experienced. There isn't just one way. But we do collect a lot of their words that we don't know until we progress what they are actually going to do with those words. . . . We are sort of revisiting those early ideas, particularly when they bring [them] from questions – "What do you wonder about?" And then, as they go through the project, if they find out the answers,

going back to the same example of the children who were most dramatic when they finally and truly understood the paradox that don't live right here, but there was a long progression of "trial and error" before they actually got there. Some of their words that they are saying may be revisited. And in another way for individual growth, we usually have project journal, something where they are making observational drawings or making memory drawings; revisit them. . . . These are my early assumptions. I never know what at this point of the project which direction it's going to go. (Excerpt from interview with Mary, 03-01-11, pp. 3-4)

Lauren mentioned revisiting students' written records, like project journal books, to support extending students' discussion by "recalling" what they took notes on.

I think that it helped them more talking and in a group—they can look back to recall just like when we take notes in the college class. They will remember like, "Oh, this is something that I'm really interested in." Also, I can look at them when we are not together to do the same thing. I'm going to have them . . . last semester, their artwork, I put on the boards because they are working on journals. That's part of the documentation and put out there and I will make copies of their work. So it's like on the field trip—what they are actually seeing in their observational drawing. . . . I don't know what we are going to see if we go to the Early American Museum, but the actual observational drawing that they did of the act or whatever. (Excerpt from interview with Lauren, 04-27-11, p. 4)

Holly mentioned that reflecting on what they did added value and purpose to their previous learning experiences. It also made her consider future directions for their learning.

I think it's more for the kids and for me because we are not just for her entire class as a whole. We need to figure out where we are going from now on through the project. I think that that helps because it is like we look at and reflect back at what we did and we use that information to go forward. And also, it is like why we do documentation is to add value to what we did. It adds purpose to why we went on that field trip. Just going and coming back and not reflecting on it. It's a regular field trip and it makes for a visit! (Excerpt from interview with Holly, 02-24-11, p. 4)

The following excerpt shows Holly's thoughts about the importance of children's reflections on their discussions and field trips, for the purpose of adding more ideas about what they needed to create an art gallery.

(Holly brings two pictures out. One is a picture of what they recorded on the blackboard. The other one is a picture from the local art museum field trip.)

Holly: There is one more thing that I want to talk about. Let's go to the library.

(She shows the first picture to the kids.) This is the list of things to go into the museum. Think about what we should have at our exhibit. (The picture is a series of written words that the teachers recorded, namely, "spy security camera, paintings, need to measure the arts, sculpture (3D art), headphone that tells about the art, a place to make art, and vitrines.)

Holly: There is one more thing that we should have. We talked about this before. Remember? E? You are the one who thought about this. (Then she shows the second picture.)

Holly: Probably, it's too small for you to see, but do you see a small square under the pictures? It's information about art—writing about arts. We should have them. (Excerpt from observation of Holly's study group, 04-20-11, pp. 2-3)

Some of the photos that Holly's study-group children revisited were made into photo books and displayed at the culminating event. The photos had students' written words on sticky notes to describe what they reflected on.

JK: I saw some people reading these [photos with students' written words].

Holly: Yeah, I really wanted to include them because it shows what they did. Everything was them. It was not me at all. It was them. I didn't paint it. You saw that. I didn't hang the paintings up. It was them.

JK: That was really interesting. . . . Why did you choose some of the pictures in this folder?

Holly: What I did was in one study group, I laid out all the pictures that I took over the semester in the preschool room. I gave my students markers and Post-its and I said, "If you see yourself in the pictures, write down the sentences about what that picture is. If you want to go further and write what you learned, you can do that." So I think B grew a lot. This is where I am pointing at the number-median. "It's the most." She was trying to elaborate. To me that shows she understood the process of this moment. That's important to me. It was a huge fit! I think she realized that, too. That's why she picked it. She knows. I laid all the pictures. It took 20 minutes. They all took their time. They all wrote down the comments. E said, "Spy camera." That's where he's at. I think that's fine. I just wanted them to see all the things that we did. The ones that I put out in here were all things that they labeled. It was the majority of pictures, anyway. The ones that they didn't label were uninteresting or not enough stuff. I thought that was fine. That's why I put them out. (Excerpt from interview with Holly, 05-20-11, p. 3)

Holly, who was interested in video-recording students' discussions, used the recorded videos for the students to revisit their ideas. For example, the video clip of when the group interviewed the experts helped them reflect on what they had said.

I used my laptop. I actually showed them. The interview happened at 11a.m., and when I had a study group in the afternoon, I showed them a part of the video. I told them, "Whenever you hear a word that's important, say that out loud and I will write it down on the board." One of the words was "tour" so that I wrote, and they wrote it. They also wrote down or drew in their notebooks. E drew an amazing picture of jobs. He split his paper into 5 [parts] and he drew a janitor and somebody dusting art, curators, a docent and a security guy. They talked about the security camera because somebody asked, "How do you prevent art from being stolen?" There was a guard and they talked about security cameras. (Excerpt from interview with Holly, 04-20-11, p. 6)

Getting students involved in the process of documentation. The emphasis on documentation for children helped the teachers to think more about getting children involved in the process of documentation. All the teachers discussed the importance of children's involvement in documentation (see an example of Holly's math/study group of pattern art), which actually was a goal of Mary and Holly. Mary said they were better at getting students' responses, but needed to work more on getting children actually involved in the process of documentation. She thought that what the teachers did with the students was actually more about getting their ideas about how to display their works, as well as the displays for the art show and the culminating event.

Mary: I think that all of us who have done this before are growing from it. I don't think that it's as much as involving students. I have to say that it is really a matter of time to sit with them and say, "Which of these pictures and what do you want to say about that?" I think that we are better about capturing their words, but I don't see them being involved in actually putting together documentation so much.

JK: You mean the kids putting them together.

Mary: I am [not] sure how that would really work. Did you do that with your group?

JK: A small step. I printed out all the pictures. That's about showing the process of making a grandfather clock representation. I printed out all the pictures to show the process and their words matching to each picture. I shuffled them and let them order [them] and put them on the board.

Mary: That's really good. Can you really think about another way for involving students in documentation boards? . . . Because that's their story. That's what they did. I'm trying this semester we are doing things about a project with our literacy group. I talked to them about it at the beginning of our time together. We are going to read books and talk about things because we are discussing museums. We are talking about that through literature—"Let's think about what we are learning"—the whole time, so every week, we are checking in and talking about it. So they will get to pick what they think is important that week instead of having us decide what *we* think. Of course, we are going to do that as well. But so they feel involved in the process more. . . . I really like the idea of the class book. For children, it's the documentation for the children in their hands. So when we went out on the field trip last year, I took lots of pictures and I wrote down the children's words so that they know that I will get to remember the field trips. That's documenting our field trips and it's creating literacy experiences. (Excerpt from interview with Lauren, 02-28-11, pp. 7-8)

After the culminating event, in which all different kinds of final displays were shared, Holly reflected on how much her students were involved in creating documentation boards and displaying the works.

Holly: The way they made the representation [gallery representation], I didn't know that was going happen. That was their idea. Everything at that show was their idea. I did not do a single implantation of ideas. They thought of everything—eye level, the art activity, making that art gallery representation. It's said here in the discussion, one of the students said that "we should make an art gallery." Then, I took that and I let them get to the goal.

JK: Why do you think that that was important—to take that specific idea?

Holly: Because I think that that's a tangible way to learn about an art museum. I could show them a video on-line—a 3-D tour. We could've visited millions of art museums and they could've written down whatever attributes they saw, but make a gallery, I think that gave them that focus that we needed to learn about art museums. (Excerpt from interview with Holly, 05-20-11, pp. 2-3)

What Did Teachers Think about Improving Their Documentation?

Mary mentioned that she needed some time to stop and think about what she was doing with documentation and how she could improve ways to do better documentation.

Recording and using. During the interviews, the teachers seemed to realize that they did record a lot of information but did not use it efficiently, especially in terms of sharing with each

other. The teachers addressed this issue and came up with some ideas to improve their performance in this regard.

JK: How often do you see the documentation that you collected or made?

Mary: How often do I see or think?

JK: Go through, think and talk about.

Mary: Almost daily. I look at what photographs we've collected, but that does not mean I am using them. Every other week I do newsletters while I'm looking at the photos and deliberately communicating something to family about what's going on in the classroom. I don't think I have real regular time to look at it. But that would be good. Suppose after field trips, we print out pictures from that field trip and have those images available for group discussions. And any those of special things, we print out photos right away and give just some support for further discussions. (Excerpt from interview with Mary, 02-22-11, p. 5)

In her last interview, Mary looked back on her improvement across semester—that is, becoming better at collecting students' words. She differentiated between recording and using. She thought that she needed to improve more at using of it.

I think I was able to collect more of their words but I don't think I achieved the level of using those words that I wanted to. I had some of them, but there were some rich conversations that might've been videotaped. That's a learning point for me—how to take it from there and use it in documentation. I did a little of that with the former director in the past when we got things ready for conferences. We pulled a snip it out of it. . . but that doesn't really work for me. I don't think that's what it is for communicating with other people. I mean, it is fun to hear them saying their words, but . . . it's really choppy to me, not really connected. It's something that I need to work on. Definitely, it's a goal. (Excerpt from interview with Mary, 06-01-11, p. 1)

Holly also thought that the teachers did well in collecting various records, but need to improve in using data—especially photos. Holly and I exchanged ideas to use the unused records (e.g., photos of classroom events) in different ways for the children to revisit.

JK: I saw you taking earth activities—cuisenaire rods work today. How are you going to use that?

Holly: For me, in my mind, those pictures are more for portfolios. If Lauren and Mary need something, then we have photographs so that I can say, "We have photos for that." I don't really use them and just use them for assessment.

JK: This school has special events like Physics Van that you had yesterday. You recorded them like photos. How do you use them?

- Holly: I don't know because I know most of it went over their heads, but at the same time, I'm thinking about bringing this up to Mary. We should bring some of the activities up to the class again or do an activity during a second choice just to reiterate what they learned about fractions under the gas, nitrogen or solid liquid gas.
- JK: Because when I looked at what we did in Prek, we had lots of photos that we took for those special events, but those were not related with the project. We didn't really use them.
- Holly: Yes. Right. I think it's important to revisit that. If we don't, that memory can be lost.
- JK: My idea is to put up some of the photos on the board from the beginning of the semester. Just name the pictures. It can be collected. In the middle of the semester, you can revisit to see "How many people helped us learning or what we experienced at the end." . . . It would be interesting to see how many visitors they had at the end of the semester.
- Holly: I like that. (She writes it down.) (Excerpt from interview with Holly, 04-20-11, p. 11)

Students' learning versus students' doing. One of the big issues, especially when they talked about portfolios to show students' growth, was how to show children's growth in a meaningful way. The portfolios included students' photos along with other records. In particular, the teachers thought of how to use photos to show children's growth. Mary thought that photos showed just a snapshot of the day, and weren't communicative about children's growth with the parents because she thought that portfolios should show engagement and problem-solving skills.

I think they are happy to have pictures of their children available and they want to know if they can have them. I think that that's another area for improvement. . . . We want to show growth. . . . I guess I would be interested in finding out how other people used that kind of portfolio documentation very successfully to be communicative. . . . I don't think it's a snapshot of a day. Our newsletters can be a snapshot of a day. But I hope that portfolios can really show engagement and problem solving. Sometimes you are not there at the moment when pictures are taken. . . . I think one of the things is that if we were very organized and planned and keep tracking of. Let's say, if I have a wonderful shot of these two children negotiating a disagreement, if I had a way that I immediately could make a note of that so that I knew that I was coming back to but I haven't found that matching up. Again, it's also a time thing. (Excerpt from interview with Mary, 02-22-11, pp. 6-7)

Holly also addressed this issue about using photos to show more about growth. She stated that portfolios should show children's growth not just children's actions. Photos alone are not enough evidence. Her idea was to do pre-assessment and post-assessment and include the artifacts and photos in portfolios to show evidence of students' growth.

Holly: Because those pictures show them working together. It is not about assessment. It really isn't. Just think about that. He's cutting out a circle or she is looking over at her friend. That's all the pictures do. Maybe the reason for the description is so that you can read about that picture and see what's going on. But I don't think that essentially captures what they are learning. I don't really think so. That's why I go back and forth with the portfolios because I see some importance of it. You need pictures to show a glimpse of what they are doing. It captures of that time of learning [measurement]. But you need more evidence that they are growing and progressing.

JK: In my thoughts, that means that to show examples of students' growth; you should have several artifacts timely how to change.

Holly: That's why I want to do pre-assessment because I can see where they were and where they are now. Yesterday the booklet that I used with them is a sort of pre-assessment. I took all the pictures of a measurement tool. We went through them. They wrote down what they think this is and what they think it is used for. Some of them wrote, "supermarket." Some kids talked about how a certain scale weighs bodies like people. I mean, nobody said anything about pounds, ounces. To me, I'm seeing that they don't know about measurement units, which is okay. It's interesting to see after analyzing and exploring the materials to see what they think. I'm hoping that something would be attained through this one subject.
(Excerpt from interview with Holly, 04-27-11, p. 8)

After this interview, Holly did a lesson on exploring measurement tools and took photos to represent children's understanding of measurement through different materials.

(She then continues to show PowerPoint slides of today's objectives: exploring measuring tools. The slide shows three different measurement groups: (a) building tall and measuring, (b) sand table, and (c) is it lighter or is it heavier?)

(a) Building tall and measuring: building a city with a tall building. (Holly shows a picture of skyscrapers in Chicago) Children recognize some buildings.

Holly: Look at different shapes; some are tall and some are short....even medium.

L: Look at the red building.

(b) Sand table: Fill one of the cups halfway: How many sticks and objects does it take to balance out the scale? What about a whole cup of sand?

Holly: What does it mean 'balanced' or 'balanced scale'?

M: The same amount.

- E: It has the same weight and the same amount. It's not heavier or lighter. It's the same weight.
- (c) Is it lighter? Or is it heavier? Hold the objects in your hands and become the human scale. (Holly holds her laptop and choice stick bottle to show lighter and heavier by putting her arm unbalanced).
- N: Seesaw! If one side goes up, it means lighter and the one goes down, it means it's heavier."
- Holly: Yes!
- Holly: (After introducing the objectives) I'm going to take pictures of you doing. (While the students are exploring the measurement tools at each center, Holly is walking around and taking pictures of them.) (Excerpt from observation of Holly's math group, 05-04-11, pp. 1-2)

The portfolios of Holly's math-group included slides with lesson objectives, their individual and group pictures of exploring measurement tools, and their written words in describing the measurement tools.

In an interview after the parent-teacher conferences, Mary said she thought that the portfolios of Holly's math group were a good example of portfolios for showing children's growth.

Actually, Holly was very good at that being able to pull together—what they did for measurement. It could show how it started, what they knew at the beginning. She really started thinking about the math topic as a project method. So when she started measurement as a topic, she said, "What they already know—she had that memory—what you just already know about measurement." So that did show growth by the end because they could demonstrate what they understood. She used a lot of photographs. We do a lot of paper, but they were doing (tasks) like holding two things—which one is heavier or lighter. I really liked that. (She writes it down.) (Excerpt from interview with Mary: 06-01-11, pp. 6-7)

Lauren also brought up this issue, but in different way. While Holly and Mary brought up timely recording and pre/post-assessment, she said that having a detailed narrative description of the children in each portfolio would help explain students' growth.

That's what we are using—a kind of proof that children are learning. So instead of having or being attested or whatever—like you said, an authentic way to get to know children—

their growth. But those things would happen without documentation. Children would've learned just as much this semester, and their would-be experience would be the same now if we didn't do any documentation. But how do you prove that? How would you show that to parents that your child has made progress in their writing skills if you don't have a way to show them that? That's our way of putting out what we know about the children. (Excerpt from interview with Lauren, 06-01-11, p. 8)

Individual learning versus group learning. Interestingly, when I asked about documentation, the first response of the teachers was about showing individual students' growth. For example, Lauren explained her thoughts on documentation as a way of talking about an individual child by comparing the process with report cards and portfolios.

Lauren: I worked at a public school. I was a long-term sub there. . . . That was more like, traditional. . . . I guess the new traditional kind of more data collection than authentic assessment. At the school they do some collection of portfolios. It's just like a district thing. I guess it's not useful. When I get their report card, it's like "checking" in different areas, different domains. In your social development, you get a check. . . . It used to be, when I was a child, you got more similar to here [this university school]. When I was a child, our report card was more written narratives. The way that we are working on documentation is, obviously. . . like photographs—the pieces that have the most meaning to the children are the ones that we usually use. . . . I tried to collect "quotes" a lot because I feel that really speaks really loudly. For example, when one child—he calls himself a late-talker—that's how they describe him. . . . He talked about another student, "Oh, he's a late talker like me." He was understanding—like, trying that connection. I thought that was really meaningful, especially coming from that individual—for him to get there was a really big thing. Then, we have our form which is the same as in the preschool room. It's pretty simple.

JK: What form?

Lauren: For our documentation.

JK: You mean, documentation boards?

Lauren: No. Oh, are you talking about documentation boards that we put up or documentation for children?

JK: Everything that you are doing here. (Excerpt from interview with Lauren, 02-28-11, p. 2)

The portfolios that Holly made for her study group and math group included not only photos of individual students, artifacts and other records, but also the photos of the small groups (e.g., written words of their group discussion and the PowerPoint slides of math-group activities,

with lesson objectives). She thought that including artifacts and photos of the small groups could show the process of an individual child's learning. After the culminating event, I shared the photos that I took there with Holly. When she saw my close-up photos of the documentation boards, she asked me to send them to her to include in the portfolios.

Holly: If you have time, can you send me some of these pictures? It would be nice to put them [close-up pictures of the boards] in their portfolios. Everybody was pictured here. I put them in their portfolios as an example.

JK: That's a good idea. They can read the board.

Holly: That's what I am going to do.

JK: What else do you think you will put in each section of the portfolios?

Holly: I think that I'm going to make a book. I'm going to put all the pieces-images and stuff on slides and put it in each child's portfolios. The reasons why I am thankful that we were able to include each child is that we can put them in their portfolios. I'm going to take the slides and make it into half pages, and I'm going to make a book. I'm also going to insert more pictures.

JK: You mean that everybody gets the same book?

Holly: To me, it's simple, efficient and at the end on the last page. I want to include standards. Oh, I need to write this down. . . . The purpose of the book is to show the process—if you want to picture their growth. Then, as you said, that (the current portfolios) does not show the growth. One page of their picture and it's marked as a project. That does not show growth.

JK: In a project, you all worked together, not just one child.

Holly: Exactly! Because each child had inspired some aspects of the art show, it is not like I have to single that out. (Excerpt from interview with Holly, 05-20-11, pp. 7-8)

Displaying all the student work versus documentation. All the teachers stated that they were concerned about including all the students' photos and artifacts in documentation boards. They differentiated putting the same work of all the students from what they meant by having all the students' work in the documentation boards.

Mary stated that having all the same work of the students focused on the product and the documentation focused on the process.

I think that it helps focus on what led in this direction. I also loved to see the process. When you just put the artwork, it is only focused on the product. This is the really important part. These are beautiful outcomes. These are what I wanted—where did it get

started and what inspired them to move on? (Excerpt from interview with Mary, 05-20-11, p. 7)

Holly agreed with Mary's thought: being focused on product versus process. She made a distinction about these two ways of displaying by comparing her experiences in her previous school and in this lab school. She emphasized showing "process" thorough documentation.

It was a private school. . . For me, it was important to show kids their art because one, it shows people that there is an art program in the school and two, that we are working hard on developing creativity and intellect in the art program. . . . In both years, I made sure that I put up works and I even started a kind of art show. I don't know what's going on there. . . . I made sure that every child's work goes up there. . . . It was more like a show case, just work of every student to make sure that parents looked. But at this school, I don't think that it's the way. I think that it is more a process. You want to document the process to show what the kids went through, like pictures. I didn't put up pictures at the previous school. It was just artwork, but documentation is like artwork, and images, and words. I really think that it's a multimedia process. It's not just one direction. You have to show the whole process in different ways in documentation. (Excerpt from interview with Holly, 02-24-11, pp. 5-6)

Lauren mentioned that she tried to include all of her study-group members' work and words. She found that some students had more work and words than others.

Lauren: She wrote a big note.

JK: This child is not in pictures very much?

Lauren: I don't have a photo of [the girl]. She might be in a picture but it's not like her face or something. She is not any of them. I wanted her drawing. You know who has the most stuff? (Pointing at another girl) because she talks a lot. She is really engaged in what we are doing. But I don't want anybody to feel like they are less important. It's true that he talked more than anybody else in the group. I probably have more words of her than anybody else. But I'm trying to be really aware about that. It's hard. She says stuff really good. . . . I did the list and checked it off and made sure everyone [included]. (Excerpt from interview with Lauren, 05-16-11, p. 9)

Improving communication. In the end, each teacher had concerns and questions about how to improve their documentation. When asked about the goals that they made throughout the semester, they discussed what they thought to be good documentation (actually focused on good

documentation boards). Mary stated that communicative documentation board is a good approach—in a succinct form, with teachers’ reflections as well as those of students about the process.

Mary: I think some of other documentation that I’ve seen from other people, what I found attractive was more like here, “a story” that children are more involved in telling. . . . I like to see things that show the whole cycle of something or a progression. . . . I’m interested in your research findings about what other people have done, which is really effective. . . . There was a time that was here—the baby project. I felt that was communicative, very well about what’s going on—and the duck project.

JK: What made you think that documentation boards were more communicative to you?

Mary: I felt like it was really succinct. We communicated about both what children were actively engaged in and teachers’ reflections on what was being learned. I would love to be able to be better at eliciting children’s reflections on that process . . . to be metacognitive—what was happening when I was investigating that. It would be cool. (Excerpt from interview with Mary, 02-22-11, p. 7)

Holly discussed good documentation by showing her favorite documentation boards, as an example of being more communicative.

Holly: This is my favorite one . . . because I think this is so simple. Actually, it seems [to be] a lot more words than I thought. For the process I wanted the kids to comment on it. I had two students comment on about—while they were listening to a story and making the art. N talked about how when she was listening to the story, she was inspired to make a dot. That’s why they started doing that. That’s the process—that they were inspired by a book. I wanted to make sure that that was seen, too. In our study group, we looked at all the dot art that Peterson did. Then we had fabulous discussion about—“What is art?”

JK: This started from the whole class. You took that part to incorporate into the study group. And I see here you are saying about the process in this documentation. You really wanted to show that this work came from the kids. Their ideas....you included conversations, their words.

Holly: Isn’t that what the purpose of the project approach is? I really believe that it is—from kids’ interests. (Excerpt from interview with Holly, 05-20-11, pp. 6-7)

She also thought that as a part of documentation, the portfolios that she made were for her study group and math group. These portfolios included group learning as well as individual

learning, which together showed the progress of individual students' growth. This helped the teacher to share how a child participated in the learning situation (from the artifacts or photos of group learning) and how each child showed uniqueness and growth in the situation. The following excerpt reveals what she shared about one child in her study group with his parents at the conferences, by using portfolios.

I think for me personally, out of the four semesters, this is the best because I really tried hard. I took my time. I think that is the biggest component of all. I really reflected on what they do at this time with this picture. I made sure to make it "unique" for that child. I think that's a good word for it. And I was proud to show it. That's why I referred to it so much [at the parent-teacher conferences] because "I want to you to look at it." I think that was really good about portfolios this semester. Sometimes, I copy and paste and make it vague and just change names . . . because that's what the whole group achieved, but individually as a child, as that child participated in it, they did their own thing, so that I wanted to make sure that was communicated in their portfolios. For example, E, Here is another point. I tried to remember what the concerns of parents were. For him, it was about "participation." They were like, "Is he participating? [or] is he actually trying to work?" At first, I said, "He is working on it." When we got into the project mode, he was hands-on. He had the best things to say. He always had very deep thinking—like critical thinking is definitely going on. You can show that in the picture. There was one picture where his head was cocked. You can tell that he was thinking. I used that picture. . . . I just included it because I wanted to talk to them about that he is a good critical thinker and that he is above beyond his age of thinking. And then, I had a very few of pictures of participation, but that was because toward the end, he was participating a lot. In the beginning, he was lying down or stroking his belly. But I had two to three pictures of him participating, so I made sure to put those in. (Excerpt from interview with Holly, 08-05-11, pp. 4-5)

Lauren focused on thinking about making better portfolios. She thought of selecting language that would show a student's growth.

Early learning social/emotional sheet. . . I kind of look at that and also I really try to, in general, the way I was trained was to try to use subjective language so I tried not to say anything. . . . I did say "kind" words but don't . . . it's not saying, "These students are good or bad." We are really talking about their social/emotional development. I guess that they have a little bit of those (looking through my copies). This is more like . . . that's better one because this is much more . . . it's factual (reading the lines). "She is exhibiting her independence and self-control during class concert. She's focused on musicians and listened to music while controlling her body." . . . It's not like, "She's a

good listener” because that’s subjective. That’s a challenge, especially when we are trying to do lots of them. (Excerpt from interview with Lauren, 06-01-11, p. 3)

Rethinking the current documentation. Although the teachers worked hard to represent their student’s work and their own practices in various ways, they addressed some aspects of documentation that they should work on more. Still the teachers thought they needed more solid time to record and share with others, as well as a solid, consistent class structure to share with the students. The teachers thought that, in particular, to improve teachers’ collaboration and communication, they needed structuring and more, in Mary’s words, “solid time.”

Solid time. Mary talked about solid time to record since the first interview. “I think it’s just difficult because there is never enough time. . . . I think that’s a challenge to find a way to have a solid time for pulling things together” (Excerpt from interview with Mary, 02-22-11, p. 4). She mentioned the lack of time for recording students’ work because she had more students who needed one-to-one support this particular year. She thought that she needed to be there with them instead of recording.

It’s just time. All of these things are so very important. I feel like time is an extra squeeze this year. We are doing so much more one-to-one support. That’s what we should be doing, but it also changes my priority. A lot of children are so much more independent, like using a computer for word-processing. I don’t have to intervene very much with that. And they are also very adept at websites. That’s scary. They can accidentally go anywhere, so they are able to do that independently, but they can’t do that independently. (Excerpt from interview with Mary, 03-17-11, p. 4)

In her last interview, Mary admitted that documentation usually turned into a “last-minute scramble.” She thought of giving more time to her TAs and having them incorporate more documentation time into their planning.

I want the TAs and me to plan about what we are gathering for portfolios. We have a standardized measure for that growth and a way to keep track of pictures that we are

taking. I'd like to think more broadly and completely how we do documentation for projects . . . having a more clear way. It so often turns into a "last-minute scramble," and it isn't meaningful. . . . If we really want this to be a portfolio that shows development, then I need to think differently about how we can do that and how we can keep up with it. I do think there are ways to squeeze out some [more] time. For example, we did this only for a few times because things didn't allow for more, but if I give them a morning TA once a week, if I do a whole group journal, or the last half of recess, journal or the first half of hour for their lunch time, they've got 45 minutes to document. To do that once a week is pretty good. Twenty minutes here and there is not good; you can't get an event organized by doing that. But if we are able to, let's say, "Tuesday is going to be Lauren's day," and she is going to already plan what she is looking at—if she needs to spend 45 minutes getting things ready for study group. (Excerpt from interview with Mary, 06-01-11, pp. 8-9)

In terms of time to share with others, the teachers addressed the lack of the time to talk with each one another: They mentioned how they appreciated the interviews talking with me. In particular, Holly and Mary showed a willingness to talk with me about documentation. Mary asked me about the efficient process of documentation and her method of documenting. She asked suggestions on displaying documentation (e.g., what do you think about this? or how did you do that when you were here?). My ideas or suggestions were reflected in teachers' actual documentation or lessons, or were discussed with other teachers. Mary said to other teachers, "I'm really glad that you and JK got us to talk. It's never a single-brain thing" (Excerpt from interview with Mary 03-17-11 p. 3).

You are encouraging me to think about what we are doing. That's what I was hoping you would do! I wouldn't have thought through this way on my own. It's definitely a collaborative thing. I felt like your documentation [when you worked here] was very meaningful because you showed what was important in a project, during your study group. (Excerpt from interview with Mary, 02-22-11, p. 11)

Holly also appreciated the time to talk with me about her teaching and students. She invited me to be a critical friend for her action research. She reasoned:

I know this is like more on your plate. Do you think that you can be my critical friend for my action research project? I can talk to other people in my classroom or other classes,

but I really think that I need someone who knows me and watches what I do. Your opinions and strategies are more valuable to me than telling someone the whole day and listening to strategies because you were already there. All I have to do is, “What did you think?” You give me an opinion. It’s better. It’s so much easier. (Excerpt from interview with Holly, 03-16-11, p. 15)

Structure. First group time was for discussing the project with the whole class. Because they had a special session in the morning, the project group time was short and irregular compared to previous years. Mary stated,

I can feel the impact of not having that 15-20 minutes [the project group time] so the first time when they did that, it was out of our literacy time; that 3 times a week didn’t work for me. That was a lot of direct instruction literacy time; it was just gone. So I asked for the different time. They could do it at 9:30 when needed; that impacted our discussion time so it’s . . . what we will get out of that. (Excerpt from interview with Mary, 04-19-11 p. 6)

Holly addressed this issue of inconsistent structure. She emphasized the project discussion time and sharing various visual records for students engaged in discussion.

If you have too many things going on at once, there is no class structure. That’s why we have so many behavior issues because they are not used to all the changes. Let’s be honest: they want structure. They want to know what comes next. . . . Even the project discussion in the morning, I think that is one of the most important things that should be done. But it doesn’t. Journal gets done. I don’t really think that journals should take the place of project discussion. That’s where they talk about what they are learning. In my mind, we should have project discussion instead, even if they can’t sit still. Bring something to get them engaged—use videos, use pictures, or use slideshows to get their attention. They can’t sit there and watch the teacher writing down the words they are saying. . . . I mean, this school is a really special place that they can do that, but at the same time, what are they missing out on? (Excerpt from interview with Holly, 04-27-11, p. 10)

She also mentioned lack of time for the group discussion in the afternoon. She thought that it should be built into the class schedule.

JK: You talked about disconnection of what you are doing to what the other teachers are doing. I saw today in the morning that Mary and Lauren’s study groups shared

what they did at group time. Have you tried to bring what you did with your study group to the whole group?

Holly: No, because there is no meeting time at the end of the day [in the afternoon]. But I think Mary tried to bring up the experts that we had—a curator. They did discuss that. On that aspect, yes she did. She made sure that we reported to the whole group. I made the last five minutes of discussion in the morning. I didn't know that she was going to do that. But my group did a great job of their findings—what a curator is, what a docent is and what they do. That was good. We just never have time. . . . In the afternoon, it's not easy to stay connected to or communicate with adults in our classroom. Lauren leaves. We are doing our own math group, readings. I am pretty much completely on my own. And there is no group discussion: I think that's a missing component and needs to be built into the schedule. I think there is group time, but we just don't have time to do it. (Excerpt from interview with Holly, 05-04-11, pp. 4-5)

Although the teachers were supposed to have time to create portfolios every day, they rushed to finish portfolios during the teacher-parent conference week. The teachers did not have time to talk about their students' growth. Mary wanted a more structure of doing documentation. In particular, she thought that the teachers needed more standard ways of doing portfolios so that they could communicate better about students' growth and development in each learning area: project, literacy, math, social/emotional, and arts/aesthetic.

Mary: I want to make sure to have standard way of doing portfolios, from the very beginning. I listened to Lauren talking about doing everything for one child, but I think that's what makes more sense, even though math and literacy and the direct instruction group can be fluid. . . . I will do my own math group . . . the morning TA will do her literacy group and the social/emotional for them because that's when she would be with them the most. That's what makes more sense to me. And in the afternoon, math and social/emotional.

JK: That means [that] you will end up having more social/emotional domains.

Mary: Yeah. I haven't landed on the very best way to do that. . . . We've tried this year to have standard time to work on that. Too many standard times are on Monday and we had too many Monday off. That was not a good plan. We can do that. (Excerpt from interview with Mary, 06-01-11, pp. 2-3)

She said the current system for creating portfolios was not solid enough. She felt that it would be difficult to show growth in other areas, except for the project, from the records that

they had. It was difficult to keep track of their growth in some areas. I suggested some ideas about how they could concentrate on in some areas that Mary felt the need to think about, for example, pattern blocks for math.

Mary: I think [that] particularly it works well for project. I think it can't work for "social/emotional." I don't see it so much with that because we do more with artifacts for math and literacy. It looks messier to me. I am not completely satisfied with how we tried to document their growth. I need a rubric. That's what I mean. I need something that I'm really looking for every month. We can show that they weren't able to do this and now they can. Did you ever make anything like that?

JK: For math, for example, as you do "self-portraits," because you said before that you want to keep track of children's pattern block creation [by taking photos]. I think you can do like you do self-portraits, like time 1 and time 2 artifacts. You can see growth there.

Mary: That's really good. (She writes it down.) (Excerpt from interview with Mary, 06-01-11, pp. 1-2)

An expert on documentation. All three teachers said they needed more collaboration among the teachers. Mary thought of having a person take the lead in documentation, as Holly did for the semester.

I think that is a difference. The Prek head teacher and I have a little bit of experience of what we've taken from the previous director. Last year I was using what we considered *successful documentation* as a template. That was good for me. This year, we are [doing] self critiques. We are getting the same critiques. . . . I mean, she [Holly] brings a lot of experienced tools as well as her art experiences. Having that eye for aesthetics of it, I really appreciate it. . . . We definitely need that [atelierista]. I mean that, without somebody taking a lead in that role, it's harder for things to be cohesive, and the whole thing, to make a story. It would be great. (Excerpt from interview with Mary, 5-10-11, p. 5)

Holly said that Mary and Lauren appreciated her initiative in creating documentation boards for that particular semester. She agreed that the school needed a person who had some expertise, with a background in art.

- JK: People appreciated your expertise on documentation this semester. They were like, “We really need this kind of expertise”—not just from you, but in general: they were like, “We have to have someone who can do this.”
- Holly: That’s what the director kept saying, too. . . . I would love to work with kids and work toward art shows and a culminating event. When we went to [an exhibit of Reggio Emilia] last year, it was amazing to see boards and products. It was like my dream-come-true. That’s really like what I’m built for. . . . If I were able to become an atelierista in [elementary school setting] it would be a dream. I’m so happy the way it turned out.
- JK: So you don’t really mind spending the amount of time?
- Holly: No, not at all. Because it looked good and it looked amazing. I don’t want to even be a boss it about at all because it really was a team effort. I could not [have] done that without them. I am really glad that all of them got on the band wagon Okay, you lead the way, then. (Excerpt from interview with Holly, 05-20-11, pp. 14-15)

Summary

Depending on the teachers’ intentions and foci, the frequently used recording systems varied from teacher to teacher. The documentation boards about the project and portfolios were the main formats of displays that the teachers concentrated on. Holly also focused on displaying work of her math-study group. The content that the teachers recorded and represented in their final displays was diverse—from academic growth to the project process.

The teachers shared their displays with various audiences: children, parents, visitors, and the community. The teachers mentioned meanings of documentation, mainly as a way to see individual children’s growth, to share with audiences, and to self-reflection about teaching.

The teachers at Washington school placed an emphasis on documentation for children by promoting students’ involvement in creating displays. They also emphasized teachers’ collaboration in documentation process. In spite of the team-teaching environment, the teachers, particularly Holly, discussed disconnection among the teachers and she took initiatives on creating documentation boards and showed different ideas for portfolios.

The teachers discussed ways of making documentation more communicative—using more records incorporated into their lessons and including group work for better understanding of individual learning. The teachers stressed that they should have more solid time and structure for each teacher to do documentation. They also noted that it would be helpful to have an expert on documentation, like Holly, so that the teachers could effectively incorporate documentation into their teaching.

Chapter 5

Lincoln Elementary School

In this section, I explore the process of documentation in two public early childhood classrooms. I also describe the teachers' thoughts on documentation and its use for teaching. I, then, describe difficulties the teachers faced to do documentation and their thoughts to improve their documentation.

Teachers' Initial Thoughts on Documentation

Tricia and Lynn already had recording and documentation systems in their classrooms. At the first meeting with both teachers, they showed me the records that they had been creating. Tricia, ESL teacher, showed audio records of students reading books. Lynn, kindergarten teacher, showed me video clips of students' reading books and viewing photos. She also showed me ways to organize the data to create slide shows on her computer. Tricia and Lynn's focus, however, were different.

See students' progress. For Tricia, documentation was a way to see students' progress, especially language growth. She explained how she developed her understanding of the students' growth in language by looking at video clips and audio recordings of her previous students.

I can show you one. It's neat because at parent-teacher conferences, you can play it and they can see [before now]. This is something that your child was doing before and this is something that your child is doing now. It's neat to see. This is an old one. This is the kindergarten one [video-clips] that they did. . . . You could see what my students read. You can see what they are reading at the beginning. That's the beginning and some of their later progress. Having them talk and see themselves. . . . Also when you use "Garage Band," . . . Kids can see the waves so that they can see if they can read and if they read loud or quiet. It takes a month for those kids to get into in. (Excerpt from interview with Tricia, 08-30-11, pp. 1-2)

Share with others. Lynn described her first encounter with documentation strategies in the first interview. With facilitation from a university professor whom she met through a teacher

training program, she did documentation to show other people in the school and visitors the standards that the kindergarten class covered by using photos.

The professor from the university came to our school to visit us; talking mainly about Differentiation of Instruction and . . . one of the last things told was what she would like to do a room-make-over of some of the classes in our school. . . . She said that as you are doing lessons in the classroom, share them with others. One best way you can do that is with technology—camera. At that time, I didn't have a really good camera, but she brought hers in. We took pictures. And on that Christmas, all my family bought me a really nice digital camera. . . . And I took a lot of pictures of the students doing their projects and a lot of them. . . . You have to talk about different standards that you are covering and making sure that people in the building, especially for kindergarten to know that "You are accomplishing certain skills and you are completing state standards." Also, I thought of documentation showing people in hallway or showing people who are just coming to visit the school that these are the state standards that we are covering in our kindergarten. . . . If it's doing something like building blocks, what are you doing in the block area to cover state standards, too—"Are they measuring? Are they doing getting along skills? How do they cooperate? How do they communicate with each other?" Lots of different areas, they might be counting the blocks as piling them up. . . . Like if the superintendent comes down to the hallway, [it will show that] this is what they are doing in this classroom. (Excerpt from interview with Lynn, 11-08-11, pp. 1-2)

She continued to talk about how her ways of doing documentation had changed since then—using different recording tools in various ways. With the grant that she received from a local school foundation in the year before, she purchased a color printer, ink cartridges, photo papers, a digital audio-recorder, and a flip camera (video-recorder).

Because she spent most of her time learning to use all these new tools, she felt that she did not do as much documentation in the last year as she had expected. She tried to record children's reading books by using the flip camera and students' reading their own stories with audio-recorder. The audio files were downloaded onto a CD and played in the listening center. The books that they made went along with the CD she made. She showed the video of students reading to them to initiate discussion of good reading behaviors. At the end of the academic year, she burned a CD of photos and video clips and sent them home with each child. She explained

that the video clips of students reading in the fall, mid-year, and the end of year, would show parents the individual child's reading progress.

How Did Teachers Record?

This section describes how Tricia and Lynn recorded. Tricia collected students work (writing) samples to create portfolios, kept writing journals, audio-recorded them reading books, and took photos of students' working together. Lynn took pictures and video-recorded students' reading books and their doings in other areas. She kept writing and math journals. Both teachers recorded their teachings as a way of teacher training. I also present teachers' preferences of recording tools and ways of organizing those records.

Video-recording. Lynn video-recorded her students reading alone, reading with friends, in small-group discussion, and children's behaviors. The students' reading was recorded in the fall, winter, and spring. She said that she used video-recording primarily to view growth in reading behaviors.

The video clips of the students reading showed that the books that they read in the fall of 2011 had only pictures. The students were pointing at each picture without saying anything. In the video clips taken during the spring of 2012, all the students were reading a book with text—one or two sentences on each page. In these video clips, Lynn's voice was not included unless the student did not know how to sound a word. I observed that she asked questions such as, "What was the book about?" to the students at the end, but there were rarely recorded in the video clips.

Video recording of teaching. During the year of this research all the teachers in the school were part of a training program from the National Board Certification. Once the teachers video-recorded a lesson with their students, they wrote about their teaching and thought of how

to improve their teaching. They would send¹⁵ the written reflection to the association, whose representatives would then evaluate it.

For example, Lynn planned to record students' group work and then sort it. She said that her lesson was designed to combine math and science. To prepare this lesson, she had the students take photos of nature. The students took three photos each (e.g., trees, rocks, snow, and branches) and sorted the printed photos into categories. In her final lesson plan each day she had a small-group meeting while the rest of the students were doing other sorting activities: with manipulatives (e.g., pattern blocks, cuisenaire rods), two-way sorting, and three-way sorting. Each small group took a turn sorting the photos on butcher paper. The following week, individual students did the same activity on individual record sheets.

During these lessons, she had a student teacher. Lynn asked the student teacher to video-record all the activities.

I wanted some of the introduction, just to see where I could cut it because I can arrange it and cut it and send it to 15 minutes for them—interacting at the table with the students and interaction among the students at the table. Hearing the language that they are using, why they put this in the particular category, what they are looking for to say, “This is kind of category.” Those are pretty much of instruction. Stay close. I knew there were adults at the other tables, I didn’t feel like I had to necessarily go to other tables to see. (Excerpt from interview with Lynn, 02-28-12, p. 5)

The following excerpt is from the video clip of the small-group sorting activity¹⁶.

(Six children are sitting at the large group while others are at the table for other sorting.)

Lynn: Last week we went outside to collect pictures of nature. What kinds of pictures did you take? Remember? (Children speak aloud the words of the objects.)

Cs: Trees, rocks, sticks

Lynn: You can look at the pictures that you have.

¹⁵ Tricia submitted the written reflection but Lynn decided not to.

¹⁶ For her final reflection about recording her teaching of this lesson, see pp. 164-165

(She is taking bags of photos for each child. Each child is grouping the photos on the carpet.)

Lynn: Find something to look alike, put them together. You (to T) got so many tree pictures.
(Lynn is doing her own sorting, too. She speaks to the group.)

Lynn: I've got all my pictures over here (putting them in a row).
(Lynn is looking at T's work.)

Lynn: What are these for?

T: Sky pictures.

Lynn: Oh, anybody has sky pictures? (Some kids bring sky photos to T).

Lynn: Maybe we can put all the pictures together. If you think that you have too many pictures, just grab a handful of pictures. We can work together.
(Seven minutes later, Lynn asks one student to bring butcher paper on the shelf over to her.)

Lynn: Let's see if that paper helps us sorting. (She draws a table-4x3- on the paper.)

Lynn: If you have pictures of sticks, we can put stick pictures over here. (Children are bringing the sorted photos to each square.)

Lynn: If you have pictures of leaves, put them on the other spot.

A: I have most leave pictures.

Lynn: Yes. A has the most pictures of leaves.

M: I have rock pictures, where should this go?

Lynn: M has rock pictures. We didn't have those yet. Let's put them here. . . .

Lynn: Look at all the photos that we have here. Oh, look at all the tree photos that she [to T] has! What do you think we have the most so far?

T: Trees.

Lynn: A, what do you guess we have the most photos of?

A: Sticks.

Lynn: The most, the biggest amount of? . . .

K: I don't know what this photo is for (showing a photo to LC).

LC: You have a mystery one?

T: (looking at the photo) mud?

LC: Mud picture, she thinks. . . .

Lynn: Step back. Take a look at our chart. What do we have the most of?

Cs: Tree.

Lynn: Point at what it gets the most. (Excerpt from a transcription of Lynn's small-group time, 03-02-11, pp. 1-2)

Photos. In the first interview, Lynn said that she focused on video-recording more than taking photos the previous year. This semester she wanted to take more pictures. As she downloaded the photos from the camera, she organized them by categories on her laptop computer. At the end of the school year, she had 46 categories with over 100 pictures in total.

The categories included students playing outside, working with friends or alone, reading books, building in the block area, creating a work with pattern blocks, sorting different materials with attributes as a math lesson, students' playing in other class areas (e.g., in the play house), snack time, class events (e.g., field trips), and school events (e.g., school picnic).

Tricia did not take many photos. She did not think that photos show ESL students' language skills or growth.

Photos, not as much, because I think it's a little harder to tell what's happening in photos; I can't measure reading from it. I can't measure their volumes; pictures are fun for kids to take—that's fun for them (JK: They take photos?) Yeah. But it's . . . in terms of what these goals . . . language goals . . . not helpful. (Excerpt from interview with Tricia, 08-30-11, p. 3)

During the first interview, I found that Tricia did not have a printer for photos. I asked Tricia, if I provided a printer and cartridges, she would take more photos in class. She welcomed this offer. Throughout the research, I twice observed her taking photos, and she did so several other times when I was not present. During the interviews, however, she constantly mentioned that she needed to take more photos and use them. The photos were stored in her laptop or her school desktop computer. Some of the photos that she took were individual children's photos, taken while holding their work. Others showed children working together and helping each other. She also took some photos of their writing samples. She came up with the idea of collecting photos of students' work to share with the parents as a "first grade memory" for the parents to keep.

JK: So any kind of goals for using documentation for you?

Tricia: I might like to do next year. to make a collection of photos of their work and put it onto a CD. (JK: just their work?) Folders for each child. Then, give it to them at the end of the year, just to see different things that their child did and see how they changed.

JK: That's a good idea. . . . Why their artifacts of the photos? You send the artifacts to home.

Tricia: Because most parents throw them away. This way they can see how much their child grew. . . maybe it's just "good first grade memory." I think what would be better is if I did make, if I get everybody's permission. Then, the tricky thing is that you don't want to show each one's work there. Some parents might be like offended, "My child's work doesn't look as good as [other children]." (Excerpt from interview with Tricia, 03-14-12, p. 4)

Students' journals. Journals of students' writing were an important record source for both teachers. Tricia, in particular, considered the students' writing journal as the most important records. In almost every interview she talked about her students' language skills by looking at their writing and their writing worksheets.

Every day the students wrote stories in their journals. The written stories were about their families and what they read in story time. She used the students' journals mainly to see their progress in writing and thinking. She stated that by showing the journals to parents at parent-teacher conferences, she could "talk about what they are good at and what are the things that they are doing and then how I want them to improve" (Excerpt from interview with Tricia, 10-25-11, p. 5).

The students in Lynn's class had two kinds of journals—one for free writing and the other for math. The math journal was used when the class practiced writing numbers. All the journal writing was done during large group time. Typically, the students sat at the table, and Lynn modeled writing letters and numbers. For example, when Lynn wrote a number on the white board and explained how to write it, the students copied the number in their notebooks and repeated writing the same number a certain number of times as instructed by Lynn . She told them to circle their favorite written numbers. When the students finished practicing writing numbers, they were allowed to draw pictures. In Lynn's classroom, the students did not have

daily journal time. At the end of the fall semester of 2011, the students had an individual conference with Lynn and went over the math journal¹⁷, which I observed.

Audio-recording. Tricia frequently used audio recording. Individual students or a group of children chose a book and read it out loud. The books were the ones that they read for guided reading. Lynn usually had the students record their readings after guided-reading time. She used the program, *Garage Band*¹⁸. This is a software to record voices. It shows waves to indicate level of volume and pitch. These aspects were what Tricia thought to be efficient for the students to self-adjust their voices to record. In the middle of the research, Tricia asked me to help her audio-record students' readings while she was having guided-reading time with each group.

(The students are working on individual work: sequences, making an elephant-piggy mask, and working on a worksheet—sorting the pictures of sharp and dull. Tricia has just explained each center.)

Tricia: (to the class) Today at the reading table, JK will record your story as you read. This time, record your voice only. Later we can make a CD and you can listen to all of classmates' story. You can take them home.

(Tricia gets her laptop ready to open, "Garage Band" program. She shows me how to use that. Z comes and picks one of his book from the book bag. Tricia titles the file name of the story. She points at the wave of the screen.)

Tricia: See? You should read loud to make big waves here. If you talk quietly, see? Waves get smaller.

(I record Z's reading and replay it to him when it is done. He smiles when he listens to his voice. He opens the book and points at each word that the audio plays.) (Excerpt from an observation of Lynn's Journal writing time, 10-27-11, pp. 1-2)

Tricia considered the audio-recordings of students' reading as a running record that helped her see individual differences in reading levels.

Actually, Z and J, they are really reading. You can tell the difference when they know or when they don't. So that's the running record. . . . With Y and H and another girl, they don't need that but their problem is that they don't understand when they read. That's my

¹⁷ For the description of Lynn's math conferences, see pp. 142-143.

¹⁸ This is a software to record and edit audios and music.

focus for them. With M, K, R, and O, they are all different. O does not know a lot of words; K is doing okay, but it's a little bit hard; M gets beyond them; R is kind of K. A little bit slow. . . . Hopefully I can go back to what they were doing and what book they chose. The book that they chose tells me a lot about their reading, too. I know what levels the books are at. I imagine that K picked a very easy book. (Tricia checked the book that K recorded reading.) "Going on a train"—It's not super easy I usually don't need to go over it a lot. It doesn't take a long time. It's quick. That's the nice thing about running record. It's the fast way to know what your students can do. (Excerpt from interview with Tricia, 10-27-11, pp. 3-4)

Lynn also explained how she used to use audio records of students reading their own stories and making a listening center during the previous year. Although during this research period she had no listening center in her classroom, she mentioned several times about her plans to have one. She said the students were not ready to record themselves reading.

I used an audio recorder again for recording children reading. And then we downloaded onto a CD and we put those in the listening center. So they were able to hear own stories that they recorded. They put in their own books that they colored the pictures at in a bag. It was part of listening center—children's own recording for reading. I thought that was really fun and exciting They love to listen to their own stories. We haven't started out own stories yet this year, but I'm hoping to get it done. Maybe have one before semester and do another one in spring so that they have at least two stories in the listening center. We really haven't installed the listening center yet because this class is a little bit low. We are still trying to figure out the difference between letters and numbers. Some of them can't. The reading is a little bit slower than last year's class. (Excerpt from interview with Lynn, 11-08-11, pp. 3-4)

Students' group discussion. During the first large group, Tricia read books related to the themes ¹⁹and reviewed the books. She wrote the students' ideas on chart paper as each one said. She wrote down key words that each student said. She displayed their records on the walls in the class, mostly on the white board in the journal writing area. The typical class schedule was after

¹⁹ Tricia had a theme-based instruction. For example, I observed that a theme, "the world around us." The students learned about the countries that each one was from: China, Korea, India, Guatemala, and Turkey, which lasted for 3 weeks.

the large group time, the students worked on writing individual stories based on what they discussed during the group time. I observed that the students used the written records to check spelling words and to develop their own stories, as needed. Tricia thought that a teacher's writing down students' words showed the students that the teacher valued their ideas.

When I write down their ideas, they can see the words. Also, they like it. They feel important when I write down what they say. And then a lot of times, they use it as notes here for them to think about things to write about. (Excerpt from interview with Tricia, 11-22-11, p. 2)

Behavior checklists. Lynn filled out behavior checklists, called the "daily record sheet," almost every day. This checklist began in the spring semester of 2012. The record sheet was school-wide, but each teacher modified some of the items according to her class schedule. The record sheet was divided into segments of a day by class activities and performance that she wanted to see from her students. The following discussion reflects what Lynn was able to understand about one child's behaviors using the record sheet.

Lynn: We want them to use an inside voice. We want them to keep their hands and feet to themselves, so, no hitting or kicking and follow the directions. V is very rarely loud. . . . V does like to talk a lot. If I'm asking him to sit quietly and listen to the teacher and he's always talking, I can't give him a smiley face for all that. So I have to just write that up—talking out and whining (looking at V's behavior checklist). Here is "standing and dancing." Basically, his day was pretty good. He got close to his goal. To me, if he is with 10 points of his goal, he almost made his goal. If it's below that, he has 3s and 4s, he needs to try a little bit harder. So each smiley face is 2 points and the straight face is 1 point, and 0 for sad face. That's how he got 66. He had 59. He almost did it. If he is, say, he's 64, or 66. I say that he made his goal.

JK: You record this throughout the day.

Lynn: Here is when he comes in; inside right away reading books quietly to himself, and here is reading time. This is bigger a chunk here. Sometimes it's harder for me to mark. . . . I just figure out the times in the morning, and most of them do well during lunch. They have freedom. They can do whatever they want. And for the most part of quite time, he [V] will be quiet. Fine arts, it just depends on how he does that.

JK: Do you get to have a chance to talk about this with V?

Lynn: Yes, before he goes home. I talk to him and he will say, “How did I do? How many points do I have?” They like to see 6s—“How many 6s do I have?” Then, we will talk about that. “Here is the time when were talking out a lot. You were whining—because it’s one of his challenges. I always tell him, “If you get within 10 points, if you get 56 to 66, you’ve almost made your goal.” They don’t quite understand what all the numbers are yet. . . . It just depends on their understandings of numerals. D wouldn’t understand all that. His understanding is a little bit low. (Excerpt from interview with Lynn, 01-27-12, pp. 2-3)

Most of the time Lynn did the sheet just before large group time when the students sat down on a carpet or at a table. In the afternoon, she did so right after the student came back from the arts/dance activity and before dismissal. She asked the assistant teacher or sometimes the whole class how the targeted students did when the class was in another room such as art and music classes. Toward the end of the study, during the last group time before dismissal, she announced the scores each student got for the day by showing the checklist. She made a short comment on each student’s accomplishment that day.

(The students are sitting on the carpet. Lynn is checking the checklists.)

Lynn: C is ready. And he has all 6 today. Give big hands (giving the checklist to him).

Cs: (Clapping) Wow. He made his goal.

Lynn: Yeah, he had a great day all day today. 64 out 66. He had almost perfect day—2 smiling faces away from perfect. But pretty good.
(Children clapped.)

Lynn: Those are two students who made their goals (checking V’s checklist). V, pretty good. 63 out 65. He almost made his goals. Good job. (Excerpt from an observation of a last group time, 02-23-12, p. 2)

(After art class, the students are sitting in the carpeted area. Lynn is taking out the checklists. She is going through the sheet.)

Lynn: There are a couple of friends who want to see their checklists.
(She takes out C’s checklist and is holding it up in the air to show the group it.)

Lynn: Let’s count together how many “6” he got.
(Children count.)

Lynn: You got 6. You got 6 “6s.” Good job. That’s pretty good.
(She takes out D’s sheet and is holding that up high. The students count together.)

Lynn: You have 3 “6s”. Let’s see if we can help him to make his goal.

(She takes out V's sheet.)

Lynn: You got 6 "6s." That's a lot better.

(Children clap. One boy sitting next to him looks at him and says, "That's nice, V.")

Lynn: If you sit next to someone who needs help, please help them. You can help V not talking while working. Who can help you? (Excerpt from an observation of the last large-group time, 03-08-12, pp. 2-3).

In a later interview, she mentioned the purpose of sharing the individual behavior checklist with the whole group.

I want them to be their cheerleaders; I want them to say, "Look at this, D had a hard morning; don't you think he can have better afternoon?" And then some of boys and girls really had good behavior and they would say, "D, I'll help you, come and sit by me." I want them to be a cheerleader for their friends. I want them to help them out. Plus, it makes D and those guys accountable for the fact that their friends really want you to have a good day and they want you to play outside. They want you to take part in things that we are doing, not time out. So what can you do to help them out? I wish friends can help them out. . . . They want to know how their friends did. I didn't ask them to come, and they just come and stand there. . . . They seem to come over and listen to see how their friends did. (Excerpt from interview with Lynn, 05-08-12, pp. 13-14)

Students' work samples. Tricia talked about the students and her lessons by looking at students' work (mostly their writing samples—a worksheet on themes) during almost every interview. In her classroom, she said that writing samples were the most important record that she kept, and they were organized into the students' individual folders.

Lynn did not collect many work samples. The typical student's work sample was a worksheet which was obtained from books or the Internet—mostly about practicing to write sight words and rhyming words. The worksheet was sent home every day as students finished them. She kept students' writing and math journals in the class.

Choices of recording tools. How frequently or commonly the teachers used each recording tool depended upon their preferences and the purposes to record.

Tricia regarded collecting students' writing journals as the most important records for her to see students' progress. "For this grade, portfolio and journals work the best to explain what they are doing" (Excerpt from interview with Tricia, 10-25-11, p. 4).

Lynn saw video recording and photos as the most useful records for her.

I would rather do something like these [video-recording and taking pictures] just than look over notebooks or writing. To me, it's more interesting. I do have required paperwork—benchmark tests or all kinds of things. . . . I know how much children like to see themselves. Like I said, since this [video camera] is not just a big or bulky thing, it's easy for me to carry. Everything seems to be going okay; then, I-Photo, I-Movie, so far, no problems. (Excerpt from interview with Lynn, 12-02-11, p. 8)

From the first interview, she mentioned that she liked to learn and use technology.

I'm interested in technology. . . . I know technology can help me. But sometimes to figure it out takes a little bit longer. Maybe it's my age. But it's interesting. I think we can't shy away from the technology. You have to get used to it. (Excerpt from interview with Lynn, 11-08-11, p. 8)

She talked about benefits of video-recorders and pictures to capture students' relations²⁰.

When it's a video, of course there is movement and you can see sometimes that they get along and sometimes they don't. If it's a snapshot, it's showing the pose; they are not going to pose for hitting somebody. They are going to pose for smiling and being friends. A snapshot or pictures is always, "happy shot." . . . They are holding hands with each other, "We are buddies. We are friends. We built this together. We are pals." They might not be a pal all the time but in the pictures, they are. (Excerpt from interview with Lynn: 02-23-12, pp. 2-3)

Organizing records. Tricia organized students' writing samples into portfolios. Lynn organized photos and video-records into a slideshow. They shared the organized displays with the parents and the students.

²⁰ For Lynn's discussion about recording relationship, see pp. 146-149.

Portfolios. Because writing was focus of teaching in Tricia's classroom, she had individual folders for their written work, along with test results. She explained the writing samples and test results included in the portfolios. Each student had one folder.

It has some other sight words. (She is going through Z's.) In the beginning, this is all I could do with him and then check only what he knew. But now he knows all of these. He's grown so much just in that little time. That's really cool to see. . . . We do a test with a book. The book purposely has some mistakes and children have to find them. This is a common test. This is for everybody [not just for ESL]. The test [only for ESL], this is about questions about things. This one actually helps you understand how we gaze them. He was very low and I couldn't do very much with him at all in the beginning. He didn't even understand my direction. One thing I said was "Write the words, sun" H drew pictures. This is some of his work that he did with water. I have them do some sorting. There was a picture—which had "more" and which had "less." They had to draw something more or less. I kept track some of his work. And then I show this [journal] to the parents at the PT conference. And then I really rely on the journal a lot. (She opens some journals.) You can see so much in here. To me this [journal] is the most important thing. This never goes home. (Excerpt from interview with Tricia, 10-25-11, p. 4)

Slideshow. Lynn did not collect students' work samples. She had a binder to keep students' progress records, including test results and progress reports for her own records. Her main display was organized digital records (i.e., photos and video clips) in her laptop computer. During the interviews she showed me the categorized photos or video clips as she talked about them. Lynn often downloaded the photos and video-clips from the camera or video-recorder onto her laptop during interviews. She showed me how she organized the records. She continued to add more as she recorded more.

Lynn organized the records by content and time. The titles were descriptive, such as *group sorting, hallway hall of frame, eating lemons, reading behavior in the fall, and reading with friends*. At the end of the last interview, I noted that she had approximately 45 categories across the school year. The digital records were classified by students, fall, winter, and spring reading, spring/fall slide shows, classroom/school events, and others. Some categories such as

reading with friends and reading alone, were made into a running slide show. The slide shows were shared with the students during large group time and with the parents at parent-teacher conferences; eventually she burned CDs for each student to take home.

A lot of photos, I put them all out and sorted them. These are the different graphing things. It's kind of organized in spring with friends. Here is group sorting. I've been sorting them [the pictures] and putting them together. That's what so nice, that I'm thinking about i-Photo to let you do that all of these. (Excerpt from interview with Lynn, 05-08-11, pp. 3-4)

Whenever she created a running slide show, she shared it with the students during group time.

(Right after the students get back from the art class, Lynn just finished checking daily record sheet with them.)

Lynn: Here is something that I want to show you. Look at my computer. This is pictures that you took outside in nature and also I have slide shows. Some of you saw this when you came to the teacher-parent conferences.

(She plays the slide show. The individual pictures with some students calling out the names of pictures.)

Lynn: Remember when some of these pictures were taken?

Ss: 100th day. (Lynn points at one object in the picture.)

Lynn: See the collection? That's someone brought.

(The slideshow moves on to video clips of writing journals.)

Lynn: What are you doing here?

Ss: We are writing journals. (Lynn points at one girl's writing.)

Lynn: Look at her. She is responsible. Drawing her pictures and writing words.

(The slideshow moves onto some pictures that Lynn took during a school event, DJ party.)

Ss: DJ party! Cool! (Excerpt from observation of large group, Lynn, 02-03-12, p. 3-4)

What Did Teachers Intend to Show?

Lynn and Tricia had different focus areas to record. I first describe Tricia's recording students' reading and writing for her ESL students. I, then present Lynn's records in reading, math, behaviors, and classroom/school events. In the last part of this section, I explain Lynn's

and Tricia's overall thoughts on recording: numbers versus relationship and individual versus relationship.

Writing. Tricia's students were ESL learners. She focused on recording students' academic progress in writing English. She considered students' journal books to be the most important data, for example, the following quotation reflects what a student's journal told Tricia about his growth in writing.

S is a good at spelling and he's a good writer. Oh, No. this is K's. I'm so proud of him. He wrote "Tree" like that. He had all the sounds. This is a lot better handwriting than in the beginning. It's very simplistic. He worked really hard. It's different but the quality is different [than before]. . . . He's very strong. Sometimes I have to push him because he can be lazy. She [Y] was lazy today (showing her previous works). Y could've done so much better. . . . Look at her writing. She did this one day. Every day what she did. She can do so much better. But she is pretty strong. . . . With S, he's such a good writer, but I want him to work on giving me better details. (Reading his journal) "I see purple house. . . ." Then want more descriptive. . . . I'm not actually too worried about grammar. Their grammar is not that bad. I think R's grammar is not as good. (She is going through journal pages.) "I see dancing. I see mom see dad." She has a lot of writing issues. (Excerpt from interview with Tricia, 10-25-11, pp. 5-6)

Reading. Tricia used audio-records of students' reading to see where they were in terms of reading. She considered this record as a "running-record" (Tricia, 10-27-12, p. 4) to see students' growth in reading books.

Following excerpt show the conversation about Y's reading between Tricia and me while Tricia was listening to Y's audio-record that I helped recording.

JK: Yesterday I helped you record Y's reading. Have you listened to it?

Tricia: I didn't get to hear it. Is it good?

JK: Yeah. I loved her soft voice. I found that she sometimes missed some sounds.

Tricia: I would imagine, though those are not really important words. That's why I don't harp on it too much. Because if she missed important words, we have problems. She won't. (She turns on Y's voice file—titled "pen pals.")

Tricia: Her grammar is interesting, isn't it? Like, there are times where she misses ending "s." That's like, the ending "ed" is so common with ESL kids. To me, I don't think that's important, but to some people it is. I mean, they get the basic thing.

Her grammar is kind of interesting. Sometimes she doesn't realize that there is a missing "s." And she says, "is" instead of "are." She doesn't understand that. (Excerpt from interview with Tricia, 02-02-12, p. 2)

Lynn made video-recordings of students' reading books. She wanted to record what the classroom rules instructed: "Read to self-independence" (1. Open the book, look at pictures, read the words; 2. Sit still; 3. Do not talk out loud; 4. Be using careful with our books; and 5. Build stories), and "Read with friends" (1. open the book, read the pictures and words; 2. stay in the same spot; 3. use quiet and inside voices; 4. take turns reading and listening; 5. stay focused; 6. be careful with our books; and 7. check for understanding).

(By reviewing the clips) This was done at the beginning of October. Again, I'm looking at how they are pointing at the pictures—Are they putting fingers on the words? And are they turning pages correctly? Because as I was watching this, some of the children flipped the wrong way: "Oh, this one does not know which way the book goes." That's really important to know, too. See? (pointing at one boy's reading-alone clip) He is flipping the book the other way. He doesn't know where the book goes yet. That tells me—I need to model more about how the books are handled and which way they would go. See? (pointing at the book) This story is so easy. Once we get to stories that have more words, it's going to be more difficult. . . . I think that some of the kids this year, as far as getting them independent and being able to work with each other, we just have to keep modeling it, again and again and again. (Excerpt from interview with Lynn, 11-22-11, pp. 2-3)

The following excerpt shows Lynn sharing video clips with the students.

(The slideshow moves to video clips of reading individually. Lynn points at one boy reading a book.)

Lynn: He carefully puts his fingers as he is reading. This is what good readers do.

(The slideshow moves on to video clips of a reading buddy. Lynn points at two girls reading their books.)

Lynn: N and Y are reading with friends. They are being responsible. Look at Y. She is listening carefully and watching N write. That's what a good reader does too.

(The slideshow moves on to a video clip of one girl reading a book on the couch in a carpeted area. In this video, she was modeling how to read a book to the whole class.)

Lynn: She is reading in 66 chair reading. Reading all by herself. She is also careful with the book.

Ss: She did not put her finger on it.

Lynn: Yes. Maybe she forgot to do that, but she did good job. (Excerpt from observation of a large group, Lynn, 11-22-11, p. 3-4)

Math. Lynn kept the students' math journals in the class. At the end of a semester, she had a meeting, called the math conference, with individual children. By looking at journals with the students, she asked students to recognize numbers written in the journals and to rewrite some numbers. She corrected them when she saw them writing incorrectly.

The following excerpt is from the individual conferences that I observed at the end of the fall semester of 2011. Each meeting lasted 2-3 minutes.

(Y comes up to the front and Lynn is flipping through the pages and pointing at her drawing. Her drawing seems detailed and pretty good and recognizable to me. She did not ask questions to Y. Lynn is flipping through the pages of V's journal.)

Lynn: Tell me about this picture.

V: These are robots.

Lynn: Here is your number 5. I want you to write 1, 2, 3 on this page.

(V is writing down. Lynn corrected "3" by showing how to write correctly.)

Lynn: (To D) Tell me about what you made here.

D: It's a tiger.

Lynn: (Lynn writes, "9, 8" on a blank page). What numbers are these?

D: Nine and eight.

Lynn: Look at me how I'm writing the numbers. (She writes how to write "9, 8" to her.)

Lynn: (To H) Tell me what you like about your work.

H: It's a castle.

Lynn: Who's that?

H: This is my sister.

Lynn: Let's see your numbers. (Lynn is pointing out each number as H says out. H reads all the numbers correctly.) (Excerpt from observation of Lynn's math time, 12-09-11, pp. 2-3)

In a later interview, she mentioned that the purpose of keeping the students' math journals, as well as having an individual conference, was to see a student's growth and current understanding of number writing and recognition.

I wanted to know if they knew which numeral was which. Plus, I wanted to ask them about some of their drawings that they did. Because I'm interested in hearing about what they like to draw and what's on their mind. So I remember that at the beginning of the year, the students who didn't know any numerals at all. I would go over those numerals with them. Today it was kind of easy because I did it numerically. So I pointed at 6 and the next one was 7 or 8. They could kind count up; that gave them a little bit of clue. . . . [Today's conferences] indicate for me a little bit that who knows their numbers and who doesn't. At least up to 10. Our goal is to get up to 20. Then, to be able to count up to 100. My questions were different [depending on the children] because I knew certain students were strong at their numerals and other students were not. (Excerpt from interview with Lynn, 12-09-11, pp. 1-2)

Students' work in other areas. Lynn's digital records included photos of students creating work and the creations which could not be saved otherwise such as sorting various materials and creating pattern block art or building wooden blocks, which could not be saved otherwise.

The following excerpt shows her thoughts about a student's work once the student completed sorting photos.

I see interaction and I see them creating and doing and sorting their own way—not necessarily my way. It's not wrong. It's just a different way. My idea was a little bit different. My idea probably would've been to have a little circle here; here are sticks; here are blocks over here; here are animals over here; and doing it that way. But this way [the picture], this is good. That's their way to sort by colors. They not only kept 6 together, but they sorted by colors. Here is what they sorted by shapes. (Excerpt from interview with Lynn, 05-08-12, p. 5)

The following excerpt shows one student's awareness of taking photos of her pattern block creation while I was helping Lynn recording students' work during a math lesson.

It was the first day of video-recording "nature sorting." Today I helped Lynn take photos of students' working in the class. I stayed with the kids at the table of pattern blocks. The kids were supposed to sort them by attributes. The kids sorted them by colors and shapes. I took photos of them doing the work together because Lynn wanted group work. I also took photos of their created work, too. When Lynn announced to the class to clean up, I noticed that one girl kept holding a box with pattern blocks sorted by colors without cleaning up. I asked her to put them back to the pattern block bin but she kept refusing. I told her, "I am going to take a picture of the pattern blocks so that you can have a photo

of that. Does it work for you?” She nodded. I took a photo with Lynn’s camera and the child checked that on the screen of the camera. She poured the blocks into the bin. (Excerpt from an observation of Lynn’s math time, 02-28-12, p. 2)

During the interview, Lynn checked the photos that I took for her. She liked the fact that I had photos of the students’ pattern blocks. I shared the story of the girl. She thought that taking photos of their work was a good idea so that the kids sorting manipulative could have a record of what they had done. She said that she would continue taking photos of their creations for the next lessons.

I appreciated the fact that you took the picture of that. That was great. That’s possibly something we can do for the tables that don’t have a recording sheet some kind. What I’d like to do is to have the children work their pictures. At the very end when we are all done, they can have sheet of their own that everyone can work on. Right now, we are introducing sorting. Before they go home, everybody has their own bag full of thumbnail pictures and they can take them. They can put them the sheet of their own. That would be the end product. . . . But I could take the pictures of, like, this picture taken here. I could do that. That’s a good point. I appreciate that. (Excerpt from interview with Lynn, 02-28-12, p. 6)

Students’ behaviors. Using the daily record sheet and video-recording, Lynn recorded her students’ behavior in the classroom. She recorded mostly during transition times. Recording behaviors was part of school-wide project. Although Tricia did not use the behavior checklist, she described behavior issues that the school faced.

[The big] issue right now is “behaviors.” We have new kids who are really causing/stirring a lot of troubles. That’s a little bit frustrating. Did you hear about “school of choice”? We don’t have it in this town. But there is one school that didn’t make it AYP so many times. We got some new kids. Some of them are from other places. When they came here, they just had bad behaviors. . . . We are trying to think about trying to find solutions—trying to help kids with better choices. . . . The parents can choose. . . . The kindergarten classes are so big and they all had an aid. (Excerpt from interview with Tricia, 10-25-11, pp. 1-2)

Lynn mentioned that she started this record sheet because of one boy with challenging classroom behavior. She hoped that this checklist would help him see his poor behavior. He had time-outs almost every day I was in the classroom. On the day before the parent-conference day in February of 2012, Lynn mentioned what she would talk with the boy's mother. She said that she had a hard time communicating with the mother about the boy's behavior in the classroom. She thought the behavior checklist along with video-recordings of the boy's behavior in the classroom could help his mom see the "truth" of how the boy acted in school.

I'm trying to get some data for D because I tried to tell his mother about his lack of interest in school. He wants to play. I understand that, but this time of year, he needs to be doing other things besides playing. So I need data. I need some way to show his mom what I'm dealing with in the classroom. . . . Since I've talked to the mom verbally when we met, she said that she would talk to him, but things aren't improving. I need to show her more; besides, this sheet that she gets, but I don't always get a signature. I don't know where it's going. . . . During the parent-teacher conference, I might be showing her a little bit about clips—how he's doing in the classroom—just for her. I need her to see and to press on that, "I'm afraid that he's not learning. He's not doing when he should be doing. . . . He's far behind." I don't know how I can put him on forward the first grade. I am really worried about that. I want her to be as concerned and I want her to help me figure out what we can do to help him out. We are working together as a team at tables and then, we need data just for him. (Excerpt from interview with Lynn, 01-27-12, p. 5)

Positive behavior. She elaborated more in the next interview. She emphasized the importance of the relationships among the students to improve their behavior. She thought that she could record students' desired behavior with photos. She shared the story about one of her previous students and how recording his positive behavior improved his classroom behavior.

Interaction. Some of these children can't work well with each other. They want to have control. They don't want to share. They want to build only what they want to build. They don't want to build what someone else wants to build. But if I say, "I'm coming around to take your picture of people who are being really responsible in building together," they will do that. All I have to do is to say those words. . . . In the past, when the professor was here, I had one boy who had a hard time getting along with everyone. She told me to think about what he does well and try to capture what he does well. There again, it helped me think about accentuating his positive. He was really good at building blocks. So whenever he went to the blocks, I really tried to have my camera out and I made sure to

take his pictures of him working with someone. Then we made a slide show of it. “Look, here is so-and-so. He’s working with friends! Look, they are sharing blocks, they are sharing ideas and at the very end, there are all their buildings. They had their hands around each other, smiling really big.” Now he wasn’t always that friendly. He wasn’t always sharing. But at that time, he was. And we showed it to as many people as we could. He was so proud of that. And then, later on the year, he said, “Hey, remember that time when we built that? Let’s do it again.” So he called that friend back to try to reenact it because he felt so good about that one time. He wanted to do it again because he felt really good about it. I think it’s really powerful. (Excerpt from interview with Lynn, 02-23-12. pp. 3-5)

Class and school events. Throughout the observations, Lynn’s class had class events and school events, for example, a field trip to a pumpkin patch, a DJ party, and the 100th school day. Lynn stated that the importance of recording these events was to support students’ memories of kindergarten. She came up with an idea of making a class book with the pictures.

These are their collections of 100 things. When I get this all in, I will label it. So that way when I go back, try to put them onto their disks, they get better. Just drag and drop. . . . And then take a look [she is typing the title]. . . . Here is J with his collection. I can put all these collections together. It’s not all different events, but they are one of them. All you have to do is to take that event and put it in. . . . I title this “100th day.” [She is going through the pictures.] . . . I took their pictures and I have the paper that says, “This is me of my collection of 100. Thank you for helping me make my collection on the 100th day.” So I put their pictures on that and one copy will be sent home and the other copy will stay with me. I can go on, like, a book or slide show and put it on a CD at the end of the year. (Excerpt from interview with Lynn, 02-03-12, pp. 1-2)

She did have a difficult time recording class or school events because sometimes she had to prepare for the events or take care of the students and could not think about taking pictures.

That’s their memories of the year. They can remember those things. Sometimes I was sad because I can get busy. If there is a party like a holiday party, I was so busy during that party, so I didn’t get to take pictures. Sometimes I feel like that I can’t do it. I should just say to the assistant teacher, “Take a picture,” but I also need her to help all the kids, too. I think that sometimes for the parties, I didn’t get all their pictures. (Excerpt from interview with Lynn, 02-07-12, p. 4)

Numbers versus relationship. Recording systems in both classrooms were of two types—ones initiated by the school and ones by the teachers. Behavior checklists and other test

results were required by the school and the school district. Video-recording students, taking photos, and collecting work were the teachers' ideas. Both teachers talked about different kinds of records. Lynn described how the checklists or other test results required by the school showed "numbers," and the strategies initiated by teachers, such as photos or video-recordings, showed "relationships."

I think the things that are initiated by the school to me are all about "numbers." It's how many kindness coins do you have, how many stars do you have, how many smiling smile face do you have, how many points do you have, if you have 66 points or not, how many "6" you have? It's all about numbers. When I'm taking pictures, it's all about "relationships;" it could be "relationships" with things if you are building, or "relationships" with other people in the class or other people in school. . . . It [the one initiated by the school] is data but it's "number data." But the pictures, they are about relationships—whether you are building or whether you are drawing or whether they are working with friends, or whatever you are working on. It's about the relationship. (Excerpt from interview with Lynn, 02-16-12, pp. 6-7)

In a later interview, Lynn began to express some doubts about the effects of the daily record sheet (number) on improving students' behaviors.

Like, D and some kids are not doing better, not improving. V and some kids are better on this. They made goals today. I don't know if this helps change their behaviors. Well, it's good to inform family about how their child doing in school, though. But I don't know if this really helps changing their behaviors. . . . Even after I explain to them to go over each page, "You did this. You can make better," some children don't understand. (Excerpt from interview with Lynn, 02-23-12, p. 4)

Tricia also compared photos with standardized tests. She thought that tests are not enough to show young children's understanding and growth.

It's a little bit idealistic, but if you want to be best for your students, you need to be doing things like this [taking photos or collecting work samples]. If you aren't going to take pictures you have to have something to show how your students are doing. Just doing tests is not enough. It's doesn't work for primary, even upper elementary. I argue that tests are not the greatest measure. . . . really seeing what the students can produce, what they understand. It has to be bigger than that. If you just try to use tests to measure how your kids are growing, that's not helpful. There are some horrible test-takers that we talked about before—what are you going to do? So part of it is. . . . I personally believe in

it. I think teachers need some accountability, something to show. It doesn't have to be extra work if you really incorporate it into what you are doing with kids. . . . It doesn't have to be so hard if you incorporate it and make it part of everything. (Excerpt from interview with Tricia, 02-09-12, p. 6)

Individual versus relationships. Lynn's slideshow included more photos of students' working together than individual pictures. When she reviewed the collected photos, she talked about her focus and her understanding of individual students as well as their relationships—working together on visual records.

I see people working together. At least this snip, this small piece of time; I see that they all working together. It's going to be that way in kindergarten classrooms because of the different levels of students. He's going to work longer than she is. Depending on the days, he's going to work longer; maybe then he will. . . . I don't know. Just depending on days. But they all have their strengths and they are having their concerns. These girls [K and T], I know they are best friends. I have to purposely split them up because they need to talk to other people. But that's not always fair for them to split them up either. It's kind of nice to get to work together. I'm sure this is a talkative group right there but as long as he's helping him though, giving a little advice, it's okay. And you see someone like H, I'm not sure why he was there at the table by himself, but he just thinks he knows the most, so I can see he might've thought, "I will just do my work and will come back and tell anybody else what to do." See? N needs a lot of grown-ups' helps because he is not independent. Might have been his time working with another girl because he really likes her. (Excerpt from interview with Lynn, 05-08-12, pp. 5-6)

Because Tricia commonly recorded students' writing samples, journals, and audio-recordings of the students' reading, she had more of a focus on individual students. Using audio-recording and photos, she did, however, record students working together.

(Journal writing time. Tricia takes out the camera from the cabinet. While walking around, she takes pictures of children. The kids are cutting paper.)

Tricia: (to A) "Nice cutting, A"

(Tricia takes a photo of N and Z looking at N's work.)

N: You took my picture!"

Tricia: Yes, I want to take a picture of you helping you each together.

(N is helping R putting the pieces together. Tricia takes a picture of J's writing. Then when she turns around to J's table, he is still helping R.)

Tricia: J, it's very nice of you helping R, but she needs to do by herself. She got a lot of help from you. Do your work.

(Tricia takes a photo of Y's writing. Then, she shows it to Y on the screen.)
Tricia: That's a picture of you. Do you see you worked so hard in the picture? That makes a superstar student!" (Y smiles.) (Excerpt from an observation of Tricia's journal writing time 01-24-12, pp. 1-2)

Later, she described how she wanted to capture the students working together, helping one another, and working independently. Although I did not observe it during the semester, Tricia came up with an idea of making a board to show "kindness" in the class, using photos of them being kind, and their words going along with that the photos. She also thought of possibly using photos for a literacy lesson.

Tricia: I'm thinking to make the kindness board. Another thing is that it might be good to make Power Point—putting some of "our classroom memory" just for fun or for us to look at. . . . Maybe it will also be good—when we do the kindness board, in the hallway—one of things that they want the teachers to do is to show ways to be kind for the whole school to see. Maybe it would be good to put some pictures of them being kind—"I know how to be kind by ____" maybe by helping friends.

JK: Or they can talk about the pictures of themselves doing work.

Tricia: Yeah. It would be something that I can post up some pictures of them doing, [for example], "what does this show you? or how can you help each other?"

JK: Maybe you can make a board for "being kind."

Tricia: Yeah. That is something to do. Or they can write about how they can be kind to each other. It's good because we read some books where kids try to be kind but then not, right kind. We can talk about "this is not a good example" or "this is a good example." (Excerpt from interview with Tricia, 01-24-12, p. 1)

At the beginning of my research, Tricia audio-recorded the student's reading individually. Later, she had the students read a book together and let them audio record their reading together.

It (audio-recording of reading) is individual in the sense that they each have their roles that they have to practice. Then, they like to read together. . . . That's why I always have to get kids to read together. That's why we do that—help each other, but there is a part that they still want to do it. And that's what they get—chances to do it. But kids really like plays—plays are really popular. . . . It's like a reader's theater. . . . When they get older, some of them start putting emotion into it—different voices. They will come in to it more. (Excerpt from interview with Tricia, 02-27-12, p. 1)

Why Did Teachers Do Documentation?

Both Lynn and Tricia said that the purpose of doing documentation was to see individual students' growth and to share their thoughts mainly with parents and other teachers. They also talked about documentation as a way to think about their teaching.

See individual student's learning. Lynn mainly used video-records to see students' growth in reading and behaviors with behavior checklists. Tricia was able to see students' growth in writing skills.

Academic skills. At the end of the research period in May, Lynn evaluated the overall progress of some students in reading by looking through the video clips of the students reading books.

What I want to do is to make one more round of them reading by themselves as well. Something that I can have an end-of-the-year snip of them reading because we were able to think what they are reading right now is so much different than things that they read in the beginning of the year. Look at the lines, a lot more words on the line, somewhat repetitive, started off with the books. This book is different from the beginning of the year. Have a snip of them reading at the end of the year would be really nice and then add it to what I can show the parents, too. See? I don't mind when they lay down when reading books. Some of them it's more comfortable. (She is continuing to mention some kids who made/are making progress—as the pictures and video clips of each kid show up.) K is always a little higher. She can continue to make progress. V is making progress, not as fast as I would hope. He is still wrapped up a little bit more about social issues that he doesn't concentrate on as academics. I think he has to get passed. (Looking at this video clip) See? Good tracking there and good pointing at the words. And look at him, I mean, there were some days he bounced all around but look at that! He is attending and he's focusing in and he is looking at her [reading partner]. That's great. I can't say he will do that every day. But he did a great job. All the kids are talking in the background; he is not distracted by that. He's focusing on it. (Excerpt from interview with Lynn, 05-08-12, pp.1-2)

Tricia's focus was on seeing individual student's progress from writing samples and journals. The following conversation shows the story of one student's progress.

Tricia: (Looking at Z's writing) "I like Legos." He was okay. As he goes more, he is thinking a lot more. (Continuing to read) "I buy a toy. I get Star wars." There is a

lot of thinking about sounds that he is doing that he wasn't before (continuing to read) "I wish to be a ironman." It's pretty funny. The more he's doing, the more he is thinking about more things. Sometimes his sentences are everywhere. He's doing so much more than he was doing in the beginning, for sure. I've had them do it 1 ½ month but he grew so much. You know what though, it's not just school. I think at home they are doing things, too. With graduate student parents, they are like that. His parents are graduate students.

JK: I can see that he's writing a lot as the time went by.

Tricia: Yeah, he's starting to write a lot and become confident. . . . He even takes a risk. He is not scared to take risks about spelling words. I know that they ask about spelling for them a lot but I never spell them unless it's like, "George Washington." (Excerpt from interview with Tricia, 10-25-11, p. 4)

Whenever Tricia looked at their writing samples and journals, she talked about both the students' attitudes toward writing.

Tricia: (Showing O's notebook) In her notebook, she's writing so much. Yesterday, when it was writing time, I said, "Okay, 5 sentences to write," but she wrote 11 sentences. She was proud of it.

JK: Yeah. I noticed that, too. When I asked her to go to the carpet to share the writing, she said, "I want to write more."

Tricia: And it's funny because Z was like, "I don't want to write." Then he likes to read a lot. I think writing is harder because he has to think more, but reading . . . he is faster at it. (Excerpt from interview with Tricia, 01-24-12, pp. 4-5)

She also talked about students' creativity by looking at students' writing samples.

Look at his 3-D! Actually, he's creative, consistently like that. . . . He takes something and makes it better. Like, we did this thing. (Tricia walks to the table to find his "wish poem.") He did that and he also wanted to make a picture of Ironman because his wish was "I wish to be an Ironman." Then, all the other kids saw that, and they all wanted to do it. . . . Even when he wasn't very good at English, he always thought something more. But he's come such a long way because in the regular classroom he would always put his head down. But now he's a leader. I think that happens. (Excerpt from interview with Tricia, 12-08-11, pp. 3-5)

Students' behaviors. During interviews, Lynn emphasized students' improvement in reading skills, their behavior, and their readiness for the following year.

Lynn: I haven't looked at all of them [video clips] yet. I did look at some today. It's interesting to see, I think, and it worries me, too because as I see it, some of the

kids, I'm worried about whether or not they are ready to go to the first grade the way I like them to be ready for the first grade. When I see that, it kind of worries me a little bit. . . . In terms of behaviors, some are still only in play mode. They only want to play. Winter is over. Usually by the end of the winter, they are more settled and they want to be ready to do more academic things, but some aren't in there yet. I'm worried about that for them. Because there are certain things that they have to be ready to do. They have to be ready to sit for a long period of time. Some of them aren't ready for that. Yeah. Those kinds of things worry me when I see the videos. Of course, I thought about things that I should've done and should do this way.

JK: Could you give me some examples?

Lynn: I wanted every child to have a turn to do pictures. And now I think three pictures are too many. I should've let them only do one because they don't have stamina to stay with the project to do that many things. It's a lot of pictures for them to go through. Some have more stamina. We can see that from the paper. They were able to stick with it and work with it. Some hardly had stamina at all unless grown-ups were standing right next to them; then they can do it. But you want them to do on their own. They can't do that yet. . . . To me that's worrisome. I want them to be more independent. . . . I can guide them and give them suggestions. . . . I can't make them be independent. I can show them ways to be independent and give them lots of praises, "Good job" and so forth. Just really, keep praising them, but it has to come from them. (Excerpt from interview with Lynn, 03-06-12, p. 2)

At the end of the school year, she thought of sharing the results of collected behavior checklists with the first grade teachers.

I have them all in the file. As the last day, I have to decide how I am going to do [organize] that. Some kind of recording: How many days they made their goals and how many they didn't, and how many days are kind of in the middle. Maybe keep a record of that, and pass that onto the first grade teachers. All the days that I have are recorded here. That means they brought them back to me; how many they made, almost made or not the goals. (Excerpt from interview with Lynn, 05-08-12, p. 13)

Share with parents. Tricia and Lynn talked about possible audiences such as administrators, other teachers, or school visitors. Both teachers, however, said that one of the important audiences for sharing products with was parents. The teachers met the parents at parent-teacher conferences or talked with them on the phone if necessary. Lynn sent newsletters and behavior checklists home. Tricia let the students take a turn to take a collection of students'

writing samples, a class book. Both teachers reported that the parents rarely visited the classrooms, particularly Tricia's ESL classroom.

On a daily basis. Lynn sent home weekly letters, field trip slips, or snack schedules. She sent behavior checklists for some students, initially ten students—the number depended on how the students did. If the students made their goals, they would not receive the record the next day. If unwanted behaviors were observed by the teachers, the students received the checklist again. The students were supposed to take it home and get their parents' signatures.

Tricia did not have a regular format for contacting the parents. She sometimes made a "class book" combining all the students' writing into a book. Each student took a turn to take each one home.

JK: I saw today that you let them take the blue class book that they made [Y took]. What's the purpose of that?

Tricia: It's because we wrote a poem. They get excited because it's something they made—everybody's pages are there. We worked on it together and most of them can read it. "I lost this." We take a turn to show the parents. It's something fun. They all made pictures so that it's their own books.

JK: What about at the end?

Tricia: I don't know what I will do. I might just leave it in the library and they can look at them again. (Excerpt from interview with Tricia, 10-25-11, p. 3)

At parent-teacher conferences. At conferences Lynn shared different products (e.g., journals or assessment sheets) from what they shared with the children. For example, she showed the parents of K, whom Lynn always described as "advanced," her writing journal and her writing skills. Lynn talked about how she would support K in her writing.

(At Y's parent-teacher conference, Lynn is showing Y's journal to the parents.)

Lynn: She's gotten a full sentence with no problem. And another sentence would be about details about her story and about her pictures. Then, more details after that. She's along very nicely since the beginning of the school, too. I've been pleased. Look at the sweater. (Mom: That's the details.) And "–ing" at the back. I've been really pleased. Does she write much at home?

Mom: Yes. Constantly. She's always. That's one of her favorite thing, especially with her grandma.

Lynn: That's perfect. That fits right in really well because reading and writing go together. . . . That's where she goes from the first grade. . . . About the beginning of May, we are starting to make places for the next year. One thing that I've noticed is that a lot of first graders this year, even though they have students and they are mixing up students, so if they have a reading group there might be some students from this teacher and some students from that teacher. It's not just only one class. That's kind of cool, too. I believe that she will do.

Mom: I'm sure that she can go anywhere.

Lynn: I'm very proud of her. She is right at where she needs to be. She is in my highest group for reading. With her books, we have a little book box out there on the shelf; she has some of the hardest books that we are working on right now. I just keep challenging her to make her work a little bit harder for the rest of spring. She is ready to go. (Excerpt from Y's parent-teacher conference, 02-10-11, pp. 1-2)

At V's conference, Lynn shared V's writing journal and the assessment sheet. She had V read to his mom (the books that he had practiced during reading time). Lynn shared her interpretation of V's recognition of numbers, letters, and shapes, as well as her support for his literacy growth. Showing his writing journal, V explained his writing and drawings to his mom.

(Lynn is showing the shape/number/letter/ sheet.)

Lynn: You (to V) learned. That's good. We did something similar earlier in the week. He did follow very well. I see him starting to remember his sounds a little bit better than before. That's good. He still does not know all the sounds yet, so we have to keep working on it. Then we know that you look kind of confused about a couple of letters.

Mom: We have a little alphabet chart so when I randomly point.

Lynn: We are still working on a couple of those, but I see his improvement. We are working hard because we are writing words now, reading sentences, and he's got speed up and gets going. (Lynn tells V to bring his book box to read to his mom. V leaves.)

Lynn: I also had him do some shapes for me. This is the square. I don't know why he didn't make it a circle because I know he knows how to make a circle. This is supposed to be "triangle." Rectangle and oval. We are working on the triangle to make sure that he knows how to form it really well [on the number page]. He is still working on numerals, of course. This is totally independent. We are going to work on going up to 20 or beyond. Here are some sounds. Here is a boat, sun, and there is a moon, dinosaur, or jar.

Mom: That was independent, too?

Lynn: This was independent. I think he saw a little bit looking at another boy. I saw him doing that a little bit, but he knows a lot of sounds, but he doesn't them all. We

are just going to keep working on sounds. That's what we will do for the rest of the year. . . .

Mom: Besides letters, sounds, and numbers, is there anything else particular I should work?

Lynn: Writing is a really good thing to do. (To V) Do you want to get your journal and show what you've written lately? Why don't you get it? (To the mom) He's making good progress with that. I see a lot more control in his writing.

Mom: I've seen that it's getting better and better.

Lynn: He writes pretty well. Look at that (his name written on the assessment worksheet). One capital and the rest lowercase. Perfect. Just what he needs for this. That's what for crayons—so much more control [than] even with a pencil. (V is bringing the journal.)

Lynn: We are trying to write for the most of week and they get to share their stories. Everybody has their journal and they'll have those again in the first grade. So it's continuing. The goal is to get to write three sentences by the end of year. . . .

Lynn: (Looking at the journal) You can see at the beginning of the year, he just wrote some letters and now we are trying to add more details and more and more.

V: This is you (pointing at a picture).

Mom: That's me? Thank you. (The mom found the sentence, "I see_.") What do you see? That's what I see? (Pointing at the picture he drew)

Lynn: What do you see? (Going through a couple of pages)

V: Tornado? (Pointing at the picture)

Mom: "I see a tornado." Is that what are supposed to say? That's awesome! (His mom is going through each page and trying to ask him about what he wrote/drew.)

V: (On a page) I see snow. I didn't have time to finish. (On a page) I want a hot cocoa.

Mom: What does it say? (V is hesitating.)

Lynn: Look at the words.

V: I go sho.

Lynn: [sh] makes /sh/.

V: I go shopping.

Lynn: What are you going shopping for? To get cocoa?

V: Yes. Hot cocoa.

Lynn: (Pointing at a word on a page) What is that word? /r/, /e/, /d/.

V: Red. That's another hot cocoa. I made a lot of hot cocoa.

Lynn: V, you have to finish some of your sentences.

Mom: I like your writing so far.

Lynn: Finish your sentences and what comes at the end of a sentence? Call that "dot"?

V: Period.

Lynn: So we're working on finishing sentences to make up to three sentences. Just keep him doing a lot of writing. He's going to have books to bring home. That's our folder. A couple of parents started asking me for "a-week-homework": Would you like that, too?

Mom: Yeah, I would. It doesn't make much time. I'm really enjoying homework over the weekend.

Lynn: Okay. We'll start sending some Wednesday homework and Friday homework as well. Just send it when you can. We will get you by. (Excerpt from V's parent-teacher conference, 02-10-12, pp. 2-4)

Although Lynn did not show video of photos for each child, she did discuss things she had learned from video clips. The following is from a conversation with C's mom at the teacher-parent conference. Lynn regarded C as having poor attention.

It's interesting because I videotaped the class a lot. When they are reading I have some clips out there [in the hallway] when they are writing. I had to put a camera on the tripod. It happened to be on his table. As I said before, I don't care if he stands up to work as long as he stays there because he has to move a little bit. But the fact that he was starting here and there and then dancing between and going back to his work and going over to see someone else. You can track them how much he is moving. (Mom: "Yes.") He's not keeping at all together so we have to help him to do that. I will go ahead and talk to the school psychologist. . . . I should have him with this team of teachers before the end of the month. We can meet again and talk. (Excerpt from C's parent-teacher conference, 02-10-12, p. 4)

In an interview, Lynn explained the reason she chose different products to share with each parent.

I know that K loves to write. So that's something that I wanted to show her family. They know that she can read already. J read for them, but we didn't show them his writing. . . . It depends on if the child is there. I love them to show them what they are doing. I found that because he [C] is so active that he has a hard time to stay put, stay with writing. So his writing isn't very low, actually. I can show that to his mom and I don't have any problem showing it to the mom. . . . Truthfully, when I came to the conferences, I didn't always have things set up. It depended on the child. I guess that for K, I just wanted to let their family know that I know that she's reading and I know that she's doing fine with her reading. I wanted to challenge her with her writing since reading and writing go together so well. I wanted to challenge her writing—"Let's see where she is now"—and hopefully then she will show improvement because we have a goal for three sentences. A lot of kids wouldn't get to that. . . . I can't say that I always show everything. It's just the way it turns out. I also just want the parents to feel comfortable and let them see if they have questions. (Excerpt from interview with Lynn, 02-16-12, pp. 4-5)

Sharing the slideshow. On the parent conference days, Lynn set up her laptop in the hallway right by the class entrance.

I know that when parents came and looked in the hallway, they see the pictures and they see the videos of their children—"Look at how nice you work together with so-and-so." They talked and asked what they did in the pictures; why they did it this way; who are these friends whom you worked with?—so they talked about different children in the classroom—why they did such and such. It engages the family with their children as to what's going on in the classroom. They ask more questions about what they did in the room because they can see a little bit of it. They can see if it's some kind of projects that they are working on, they can see the portion of the project and the child might say, "Then I did this and we did that." They can also see what happens after the picture. It looks like a series on that, which is good. (Excerpt from interview with Lynn, 11-08-11, p. 5)

The students and parents were able to watch the slideshow before and after the conference. Parents and children discussed the slideshow.

(On the way out to the hallway, K's mom and dad stopped at the computer and were watching. Since the next parents didn't arrive yet, Lynn came out and pulled out the buddy reading video clip in which K appeared.)

Lynn: I like that she is paying attention to T; this video clip is about K's reading, but she is giving attention to her. She had a chance to read later. They had this individual reading box."

Mom: Yes, she loves T. She talks a lot about her at home.

Lynn: See we got the pillows.

Mom: That's cool.

Lynn: In this video, it's about T's reading, but she is giving attention and they had each one's box so that she got to chance to read, too.

(Then the computer goes back to the slide show—some pictures of necklaces or collections from the 100th day of school. Her mom is pointing at one of J's collections.)

Lynn: Yes, J brought 100 bubbles for the 100th day. Each one had one bubble.

(The parents keep watching them—talking about them in relation to K.)

(Excerpt from observation of K's teacher-parent conferences, 02-10-12, p. 2)

In a later interview, Lynn discussed showing the slide show at the conferences.

Lynn: It worked out really well. So, those of the pictures that we have taken in the past few months, so I just thought, in the fall I had the fall slide show. I didn't plug it so that the battery went out. That's why I decided that I can move that little desk over and keep that plugged in, and didn't have any problem at all.

JK: I saw some parents and kids also asked questions about class.

Lynn: See? I was able to put it in the little videos that they were reading together, not a lot, but I put it into a couple. And that shows the examples of those kinds of things, too. And they can see themselves reading. We just want to continue to do

that. It's so easy. I know that other teachers said that they like to do that, too. I said to them, "It's easy to use, put some music." (Excerpt from interview with Lynn, 02-16-12, pp. 4-6)

ESL parents. Tricia attended the conferences led by the students' classroom teacher (CT). She had only limited time to communicate with the parents during that time. (She had 5 minutes for Z's conference.) She shared Z's portfolios. I asked her about Z's conference—what she would share about Z before the conference day.

I will probably share his journal. I have all the works that I collected. Also, I have small enough of class that I can talk about like he's a really great reader, but right now he does not like to write; every time we write now, he doesn't, which is weird, because before the break [winter break] he loved to write. It's very odd. . . . I think part of that is that he always wants to spell perfectly. He is such a perfectionist. There is that part. He is just driving me nuts every time he has a writing assignment. Today I made him five sentences and he did it with no problem. He actually did it maybe in two minutes when he knew everybody was gone. . . . But I'm so proud of him. He improved so much. His English is so amazing. I think for him, when he goes back to China he will lose it very quickly. Even that one month of not being in school, huge difference. When he came back, he was like...very quiet. He could read, but his writing, that's where he didn't want to write. It's just really different. But then, it got the thing is that he did the pattern writing. (She is looking at the writing sample.) Before, he would have not followed the pattern; like, he created his own things. He would take more risks. This is a pattern that I don't like about it. (Except from interview with Tricia, 02-07-12, p. 4)

The following conversation occurred between Tricia and a parent on the conference day.

(Tricia and Z's mom had a little talk in the hallway while waiting for their time. Tricia took out some of his writing samples from his portfolio folder and shared his progress in the ESL class.)

Tricia: How all the kids are from different places and they get excited to learn about each other's countries and different cultures. And he grew up so much (showing Z's journal). When he first started, he would write very simple sentences—"I like Legos." It was very simplistic, and now he can write very easily and he gets very confident.

(Then the classroom teacher comes to get us. She starts and then asks Tricia to share.)

Tricia: I was showing her [his journal]. This was like, his. The first day...he wrote, "I like Legos." I have to admit that he writes about Star Wars and Legos. His friend thinks like that, too. But that's fine. As he got more confident, [he wrote] "I wish to be Ironman." Just different things. He is taking more risks. He is more like a

risk-taker. Now that he is understanding what sounds are and he actually doesn't like to draw as much as he used to. He can fill up the whole page with tons of things that he's thinking about. One of the things that is really funny about him is that he doesn't like one I do like, "Write about your weekend." He doesn't like to do that. One day what he did . . . was really funny. He made up questions: "What is N's favorite food?" He asked him and then he wrote it upside down like a quiz.

CT: That's hilarious.

Tricia: Yeah. He's very creative. He doesn't like simple writing. Today we did poetry writing. He was like, working so hard, and he loved it. He's a creative writer. He doesn't like to write the sentences that I write on the wall. He wants to think of it a different way, which is wonderful because he is thinking so much. His comprehension is so good. He reads better than some kids who I know to happen [to have been] in the states longer than him. . . . When he came back, it was actually very difficult for him to transition back to speaking in English and writing in English. Reading was okay, but writing and speaking, it was different. Before he left he was so confident and so excited and he was always. . . . He's getting back to that, but I know when you go back to China you want to keep him speaking English and writing English. That would be something to think about.

CT: It was really surprising.

Mom: It was really hard at first.

Mom: Oh, really?

CT: He got very quiet and he also put his head down when we were sitting on the carpet; he did that a lot like he did the way at the beginning of the year. The other kids were talking to him and he didn't really respond in the same way. But it came back and he's fine.

Tricia: Yeah. He is fine. But he was very shy initially—very, at the beginning. That's something to keep in mind when you go back to China. Of course, he's going to be more Chinese, which that's his language and he means that, of course. But keep in mind that, if you want him to keep his English, which he is very excellent at. I think he's gifted at language. I think that is a suit for him to take it into English and use the language. I would imagine in Chinese he's a very good writer in some ways, but in order to keep that going, he's going to definitely need some extra help to keep it. That was something that I want to keep in mind for you. Especially so young, because it's still before things are really set. I really enjoyed him a lot.

CT: I do, too. That's why he got the reward for being the most improved. He's made so much progress since the beginning of the year. (Excerpt from observation of Z's parent-teacher conference, 02-09-11, p. 1 & 3-4)

Share the positive and the negative. Before D's conference, Lynn expressed some concerns about sharing video clips of D's classroom behaviors with his mom. She mentioned that because of him, she changed her thoughts about documentation. She had thought

documentation would be to show something “positive,” but she came to see recording the “truth” would capture less-than-ideal aspects of their behavior.

Since you asked me about the conferences, I have to tell you that some of their conferences will be hard-3 children. Among them, D is going to be tough because I have to ask him about retention. I think his mom will not take this well. Sometimes I video-recorded him doing something else. He is only interested in playing, like I said before, playing in the housekeeping area. He does not want to do anything else—doing the classroom work. Whenever I tell his mom, the mom does not want to listen to me. She thinks that just talking to him will help. For this mom, she should see the truth—what’s going on in the classroom. Since you are interested in seeing me documenting, I mean, I thought that documentation is always about good and positive things, but for him, not. I feel bad about using documentation like this, but again, the mom should see how he is doing. We will see how it goes. (Excerpt from interview with Lynn, 02-07-12, p.1)

After D’s conference with his mom, Lynn explained that although she did not show the video clips to D’s mom, she would continue to record his behaviors and keep the records as evidence.

She [D’s mom] came in here yesterday. She came in and observed. When she was in here, he did really well. He did really well. So that shows us all that he can do it. He is choosing not to do it. So it’s not so much that it’s hyperactivity. It’s choosing to act out. . . . I think he wants a lot of attention. He wants people to look at him and listen to him. I think that’s why he acts out a lot. . . . When his mom was here yesterday he didn’t show that. I can choose, then, this is the consequence. I always tell him, “If you talk out of turn again, you will go to the table.” I always tell him those kinds of thing so he knows “one more time, you are going to that table.” . . . When I video-record things like that, we only had a few minutes with the mom, I talked with another teacher before. I’ve got a lot of things to share. I think what we have to share is going to be powerful enough. . . . Since we didn’t actually use those at the conferences, I will just keep filing on the way and when she needs to see something. . . . because she said to me, “I don’t have any problem with him. He’s fine at home.” So I guess we are all doing something wrong because he is not following what we say. (Excerpt from interview with Lynn, 02-16-12, pp. 3-4)

Tricia also mentioned showing the reality of students’ lives with the parents, even when it is negative. She thought parents had to know how their children are doing in school. She emphasized that this would be an extreme case.

I think I would do more [of an] extreme case; like, if a parent was not really understanding how behind the child was, you could play a piece of play that they read. I say, “This is your child. This is another child. If they are reading from a similar level of texts, you can compare.” But I would use it as an extreme case. I feel like you could insult the parents. But if there is a parent who is having a hard time knowing the difference. . . . Some of the parents, they say that they understand, but they don’t because they don’t understand how behind their child is. Then, you can also use it to prove the other—that this parent is so worried about their child’s reading, and you can say, “This is a group of them reading together. You can see your child is doing fine.” That can explain it. (Excerpt from interview with Tricia, 05-17-12, p. 6)

Not sharing. Some records were not downloaded onto computers from a camera or a video-recorder. Usually the reason for “not sharing” was because the teachers felt uncomfortable about sharing records of themselves and their instruction.

Lynn felt uncomfortable about video clips of small-group lesson that included her. She said she wanted to focus on students’ involvement.

JK: Are you going to include those video clips [the ones of her teaching] in the CD?

Lynn: I’ll think about it. I don’t know yet. Because there are certain parts that they are not attending. I don’t think I want [to show the video clips to the parents] . . . If I have to take it to an RTI meeting, I could use it for the RTI meeting, Yeah [I can show]. And for students, they always want to see themselves. Use it as a reward and uplift for them—encourage them. That’s why I think this whole thing [the video-recording process] is weird for me because I don’t really want to be filmed. I want to film *them* [students]. I want to see what *they* are doing. I don’t really want to see what *I’m* doing. I want to see what *they* are doing. I want to see the work that *they* are doing. I want to see *their* growth. I don’t want to see myself. (Excerpt from interview with Lynn, 03-06-12 pp. 6-8)

Throughout interviews, Tricia mentioned that she would burn audio records of students reading on CDs and share them with the parents at the end of the school year. At the very last interview, Tricia said that she would not do that. She reasoned that she did not feel that those records showed good teaching. It was her first year teaching the early childhood ESL class. She was not confident that the records would show her as a good teacher.

I feel like this year was a lot of collecting materials for the first grade because I didn't have anything. That's why . . . I want to record some of their stories on a CD, but I'm a little bit scared if parents get upset with [what I've done]. I don't think most of people would, but you never know. (Excerpt from interview with Tricia, 05-08-12. p. 4)

Share with other teachers. Tricia had informal conversations with the ESL students' classroom teachers. Lynn did not have meetings with her assistant teacher. In the latter part of this research, she had a student teacher, and they talked informally after school about the students. Although I did not attend any of the teachers' meetings, the teachers sometimes discussed these meetings during the interviews. Tricia attended a collaborative teacher meetings organized by district teachers. The meetings occurred every month. She said that she would attend the meetings whenever her schedule allowed. During the research she attended the meetings twice. Once, it was her turn to share her lessons and students' work. She prepared, but she did not get to share because of scheduling problem. I asked what she wanted to share with other teachers.

Tricia: It's a mentoring group. We are all different people. We worked together. . . . I like thinking about my teaching and, "Am I doing a good job? What can be different?" They are from all over. I'm thinking if they are from the town, too. It might be from the town right now. There might be another meeting in another town. They are different grade levels. But it's pretty laid back. It used to be a little more intense. I was intimidated, too. But I think that people are a little more relaxed this year, which I appreciate.

JK: What do you mean "intense"?

Tricia: Last year when I did. It almost felt like it's a competition to be the best. That gets too much pressure. But this year it feels more laid back. . . . I think that they are trying to have that atmosphere, but some of the teachers involved were like, very success [driven]—"I need to be the best teacher." That's too much intensity. I couldn't handle that. . . . Everyone asks you questions. Sometimes I felt like It wasn't as much a learning feel.

JK: What kind of feedback do you usually get when you show your lessons to them?

Tricia: I have found it very helpful to see what other people are doing and we help each other think about things—offer questions: "Why didn't you do this?" I like that. But it's not critical. That is one of the things that I really like about it. It's very

much –“Oh, maybe this could be different; how can we help you think about that?” I like that. (Excerpt from interview with Tricia, 02-02-12, pp. 2-3)

In the next interview she addressed what she would share with regard to students’ work samples:

I want to talk about and think about it. It’s more about “reflection.” I’m presenting, but I’m reflecting on my teaching and they will ask me questions: “Why did you pick this? Why did you do that?” So it helps me think more. That’s why I actually like the group a lot because it’s hard to find time to reflect. This year I had time with you, but that’s not usual. So just having that time to talk about teaching and think about it: “Is this the most effective way? What kind of changes? What would be good to do differently? What would I really like to get out of it?” (Excerpt from interview with Tricia, 02-07-12, p. 1)

Think about their teaching. Although the video recording of their teaching²¹ was not initiated by the teachers themselves, both Lynn and Tricia saw positive effects from recording themselves. They said that they were able to think about modifications to their teaching, as well as to see different aspects of the students.

I see me doing more talking than probably I should be doing. And I should just sit back and let them do more talking. Let them lead. I need to let them move the conversation more. You know that this is different because I saw that they needed guidance for that; they do need guidance to a certain extent, but maybe I should just figure out the ways to have them open up more conversations to hear other people’s opinions be respectful about that. We work more towards that so that way when someone else is talking, they will be more open to that, to those kinds of things. So I can work towards that with the class. And one of things that we talked about during the class meetings is to be respectful toward others, listen to them when they talk, just as we are respectful to you, and so we do that, but I probably should push it to carry over in the other areas more. It’s all about respect, basically. (Excerpt from interview with Lynn, 03-06-12, p. 4)

Lynn reflected on the video-recordings of her teaching. She concluded that she needed to support the students’ sense of independence, to challenge the students who were at a higher level, and to use the room more efficiently.

²¹ For the description of the lesson, see pp. 128-129.

I wrote a lot about scaffolding the lesson more, preparing the students beforehand, and doing more with practicing independence because a lot of my students, their maturity levels, are not independent. They can't be on their own. And there are not enough adults in the room to be standing next to all of them who need adults' help. So my job as a teacher, I should've served them better and helped them to foster independence, to be able to be on their own at a certain area. For the students with higher level types of learning, challenge them. Use the room in a different way; we were all huddled in the middle; find ways to use out of parts of the room a little bit more and to break up the big group. . . . This summer my goal is to get the whole group back in and open them up. Get some other stuff stored away so that I can use that back in more. And I can have kids at there because it was really hard to hear some of things that they said. . . . I think someone who doesn't want to talk; then they really don't want to go because they were too loud. I learned those kinds of things. (Excerpt from interview with Lynn, 05-08-12, p. 12)

Tricia's video of herself teaching included story time with the whole group and guided reading groups. The one she wrote about was when the students shared their writing work with one another. She thought that it was like an experiment to find the moment when the students could talk with one another the most.

By reviewing video-recordings of her teachings, Tricia saw different aspects of the students (focusing on how they interact each other) and her instruction.

That I really liked the students' interaction. . . . They kept asking me something and I was like, "Go ask them, someone else." She [M] asked me how to spell her friend's name again, (In the video, Tricia said, "Did you ask her?") I asked her to say slowly. She asked her and she said it but the girl was so fast. I like forcing them to talk each other. Even J, she said to the girl, "M wants to ask you something." I was, "That's so great." She [J]'s such a helper. . . . I think that I need to get them to talk each other more. I'm trying to get them to ask someone else, "What do you think you should do?" Try to get them to use each other as a resource; not so much me. (Excerpt from interview with Tricia, 12-06-11, pp. 2-3)

She saw why promoting students' conversations as important. Sharing their own work would work to encourage them to talk with one another.

For early English, she is probably scared to use English. But someone like M, she's just shy. I just want them to talk and share their ideas more. As they become more confident about their ideas, they will be more confident as a person, I think, they can voice their opinions, more things like that. It's ESL and SEL. It's both—social and emotional. It's

the aspect of using English more, but more proud of your work and more confident, and say more opinions. That's actually one of the things in the report card that we have as that: "Can they do an oral presentation to one another?" (Excerpt from interview with Tricia, 03-05-12, p. 2)

In the video clip that Tricia chose, the students used their own writing. She video-recorded the students taking turns asking questions about one another's writing. Tricia reflected:

It was a good interaction that they were really looking at each other's books; asking questions about it. They were really proud of their own books and encouraging each other. To me, they are growing so much. . . . My questions were by listening to it and looking at them, "What did you notice about their conversation?" I think I will just talk about, "They were really staying in the group, they were not running around, they did get a little distracted and the part of that is the relationship. (Excerpt from interview with Tricia, 03-14-12, p. 4)

Tricia said that she would want to continue video-recording her teaching in the future.

I want to keep videotaping myself because I really feel like that it made me think more. . . . I felt like this helped me think more and more conscientious. I do like it and I want to keep doing it. (Excerpt from interview with Tricia, 03-01-12, p. 3)

What Did Documentation Do for Students?

Both teachers mentioned that recording and documenting students' work should be more for the students. They discussed the ways of sharing students' work with them and its effects on and meanings to students.

Share with students. Tricia and Lynn had different strategies and purposes for sharing displays with their students. Lynn showed slideshows during large-group time and reviewed good reading behavior and their accomplishments up to that point. Lynn rarely put the students' work on the walls, while Tricia routinely placed students' work on the walls.

In groups. After Lynn made the slideshow of the video recordings of students reading and photos of working together, she shared them with the students in a large group. She shared

them by displaying on TV or in her laptop computer. She said that sharing the slideshow would model and promote reading skills.

Modeling reading skills. When Lynn showed slide shows or video clips of reading, she made comments and asked the students questions. Her comments or questions to the students were a way for the students to encourage their peers to practice desired skills or behavior, such as “good reading behavior,” “good reading behavior with friends,” or “skills in reading books²².”

The following vignette shows that how Lynn had a conversation with her students about reading with friends by viewing video clips.

(At Large group, Lynn filmed three students’ reading with their friends during buddy reading time today. The students are sitting at the carpeted area right after “buddy reading” time . . . as she did stars to check who followed the rules during the reading time, Lynn is pointing at the “Reading with a friend rules” on the board. The students read each line together. She is showing her video recording to the group.)

Lynn: I can show some movies. We can see some of the good readers.

(While the students are sitting at the table, Lynn is connecting the video recorder to the TV. The students are sitting facing the TV. As she plays the video clips, Lynn talks about some of them.)

Lynn: She carefully turned the page and read the book. Eyes go to both sides [pictures and words]. I like that she is looking at the pictures carefully. Pictures help you read, and that’s what good readers do. Good job.

(Then she continues playing and talks about two girls reading together.)

Lynn: Look at the girls. K is reading a book to T. She (T) is looking at the book that K is reading, not looking somewhere else. T is reading carefully and looking at words. Good job.

(Two boys at the square table turn to the girls in the rectangle table and talk to them.)

Lynn: Good job.

(The girls are looking at each other and smile. Lynn continues talking about the girls.)

Lynn: Then, K picked the same book. . . . They are on the movie because they are such good readers.

(The video continues and it stops at the part where one boy is standing and talking to Lynn. She stops playing the video and talks to the students.)

²² For class rules about reading, see p. 141.

Lynn: I had to stop because someone came to talk to me. If you do, I can't record their reading. So please, next time when you see me holding the video recorder, please wait until I finish.

Lynn: (She sees one boy talking to other students sitting next to him. He already has made an interruption and Lynn has told him to stop while watching this video. So far, D did not appear in the movie. Lynn talks to him,) I need you to do this [showing videos] because you can practice carefully. You can't be in the movie because maybe you weren't being responsible or not respectful. Hence, I stop our movie today. (Lynn turns off the TV. JD puts his face down on the table. The students are called to the carpeted area.) (Excerpt from an observation of Lynn's group time, 12-08-11, pp. 2-3)

Practicing skills. Lynn extended this thought of video clips of student's literacy as a way for the students to practice skills. Possibly even after they leave the class, students can still remember and practice at home what they learned in kindergarten by reviewing the video clips.

In the past we made movies about "sight words and number words." We filmed boys and girls holding the sight words and saying them. And then spliced them all together so we have a film of everybody with the sight words; and then for them to practice over the summer—give them a CD/DVD that they can watch at home. It's good practice, and a review at the same. With our color songs, we will sing as a practice again—some of the words that they need to know. . . . It is a memory that has a lot of friends from their classroom. But it is also a review because they like to see themselves in the movie. Hopefully, they can watch many times. . . . If they [students] are foreign, they go back to their own countries, and they also have that to take home, and hear some English back in their home. (Excerpt from interview with Lynn, 03-06-12, p. 5)

Promoting positives. Lynn mentioned the importance of sharing slideshows with the whole class, in order "to celebrate positives"—promoting positive reading behavior, to encourage positive class/school behavior, and celebrate what they have accomplished. By seeing their positive behavior, as recorded, and their friends' modeling positive behavior, Lynn stated that the students were able to talk and think about what constitutes good behavior, and that, hopefully, students would show improvement.

For example, every time Lynn made slide shows she showed them to the entire class. She thought that showing what the students had done so far was important. The purpose of showing the records of what they did was, as she emphasized, “to accentuate positives” by looking at their own accomplishments in class.

I wanted them to see what they had so far. Since not everybody came to the parent-teacher conferences, I wanted them to see their winter video that we made. Again, it celebrates positives—Look how K and T are reading well with each other. . . . It’s always accentuating good behaviors; whether it’s for reading or writing, or behaviors in general, I think you have to accentuate positive all the time with these guys. . . . I want them to sit at the chair and I can say, “Look, he [or she] is being careful with the book. I like the way he’s putting his finger at the words.” “He’s being careful with turning the pages. Look I can’t hear anything. He’s reading quietly.” All the things on the poster about what we are talking about, and he’s showing it to them. He may be not able to do that very well in other times, but at that time [being recorded], he does a perfect job. It’s a practice just for him doing right thing. . . . In the picture, you will see that. They are holding their hands each, “We are buddy. We are friends. We built this together. We are a pal.” They might not be a pal all the time but in the pictures, they are. (Excerpt from interview with Lynn, 02-23-12. pp. 1-5)

By displaying students’ work on walls. As the students finished writing or drawing on their worksheets, Tricia put the students’ work on the walls inside the classroom or in the hallway. She emphasized that the kids liked to see their work displayed on the walls.

If the parents come, (JK: is that often?) that is not often. . . . That’s why it’s more for them [the students]. They can be excited when they see their work—“Look, there is my work, mine.” (Excerpt from interview with Tricia, 03-05-12, p. 3)

She also mentioned how one boy used his or his friends’ work as a reference to find the words that he needed to write.

Sometimes I feel like I have so many things, but they use it. It looks nice. It’s not children’s works. Z. One thing that I like about Z is that he will remember where words are. So if we want to write “lost and found,” he wants to write in his notebook, “lost,” and he will remember where to find it. During journal time, if he gets up and wanders around, I don’t talk to him because I know he is going to find the words [from writing on a sheet displayed on the wall]. It’s really neat when he does that. He’s really smart. He’s very sharp about things. (Excerpt from interview with Tricia, 10-27-11, p. 5)

Meanings of documentation for students. Both teachers thought that recording students' work tells students that teachers value their work. It gives the students pride in their work. As Lynn stated: "I think that's one step further saying, 'I really value what you just did'" (Excerpt from interview with Lynn, 02-03-12, p. 3). It can also help students' recognition of their own work, as Tricia stated: "They just like to look at themselves. It's like they do feel proud when you take pictures of them about something" (Excerpt from interview with Tricia, 03-14-12, p.3). The teachers believed that the teachers' respectful attitudes toward students' learning help learning.

Lynn talked about using photos to recognize students' behavior, as incentives to promote their positive class behavior. For example, she pointed out a photo of five children standing in a row in hallway.

I just asked, "Who can walk in hallway in a nice way? Boys and girls who are really responsible in the hallway, I will take a picture." I took one picture of those who walked careful and then we took a silly picture. And I said that we will show the picture to boys and girls; I want them to look at and see—"Are you standing? Are you touching each other? Are you talking? Are you still?" We had to look at everything. You are going to be in the "hallway honor frame". . . . I have to print out their pictures and put it up in hallway for the ones showing good jobs. . . . It's more [of a] incentive . . . like "I want to be in the hallway everybody sees me." For N, he never does. Probably a little will be over, but he can buy it and do it, then this will be a really good thing. So again, they love to be in front of the camera, they like the recognition of it. They want everybody to see them, so we put them [photos] in the hallway so everybody wants to see. That's my goal. (Excerpt from interview with Lynn, 05-08-12, pp. 6-7)

Lynn elaborated recognizing the value on students' work.

"It's a memorable job. We want to make a memory of it." It's one thing to say, "You built a nice block, a castle whatever." That's a great block castle. They came to look at it. To make a memory of it and taking a picture of it—that to me is saying, it's exceptional—one even better. (Excerpt from interview with Lynn, 02-03-12, p. 3)

While in the classes I was able to observe students' responses when the teachers and I took pictures (when she asked me to help her).

(The students are working on coloring. Lynn walks over to the TV stand to get the camera. She takes pictures of each individual child. I can't see the screen that she is angling at. I walk over by her and glance at the screen without trying to interrupt her. I see that she takes some of the children's individual pictures who are making a pose (smiling faces) and also some of the group pictures at the table. She walks over to the table where CK, Z and Y are sitting. Lynn takes a picture CK.)

Lynn: You stay in line!

(Then, she turns to Z. He was watching Lynn taking pictures of CK. When Lynn turns to him, he turns his face to her.)

Lynn: (to N) No, stay there. I will take your pictures. Wow, you really stayed in line. (Then Lynn shows the picture to Z.)

Lynn: You stayed in line, didn't you? (Z smiles.)

(Lynn takes another group of children's pictures. I am walking around the classroom to help the kids. I stop at Z's seat.. His coloring skill looks very good to me. I take a picture of his work.)

Z: She took the picture of mine, again!

N: (to JK) Can you show me mine? (Excerpt from observation of Lynn's center time, 02-01-12, pp. 1-2)

Lynn believed that recordings (e.g., videotaping) can motivate students to work harder.

I think that they see themselves differently when I videotape. They think of it more as a purpose to be in the movie. And I believe that they try harder. I see them the same either way because I want them to be successful. I want them to be successful by just reading with me or by themselves. . . . Because I want to be able to hear them and I want them to have their time. Otherwise, it's just me reading with them. . . . But I do think as I see them reading, they are so studious, they are turning the pages, they are trying to look at the book—instead of looking around. I think they are trying to be better readers when they are videotaped. (Excerpt from interview with Lynn, 12-02-11, p. 6)

Memory. Lynn also thought of these records as “kindergarten memories” for her students.

She mentioned keeping pictures of her own child's school years and she wanted to help the parents to keep their own children's memories of their work and friends in kindergarten.

I hope it's also a memento. Because to me kindergarten, being their first year . . . is a “milestone.” A lot of things that they do, they are growing a lot and they are making good progress, you want to keep some of them. You can't keep everything that you are doing

at school, but you can keep something to just mark some progress. I keep early writing of my own daughters, pictures of my own daughters. We have them on file. . . . To me, those are important and I want to save them. Because one day, they will all enjoy looking back at that. One day, when they have their own children, they will say, "This is what I used to write." . . . I wanted to say, "The more you do something, the better you get at." Saving anything that they are doing here, the more we get them to do it, the better they will be at it. I guess then, the more I keep trying to help the parents to get involved, hopefully they will. . . . Some of kindergartens they might be friends with this one person and they built that project with that person. So it's also memorable working together. They might not be always best friends forever. They might be friends with someone else the next time when you take your pictures. But it's like, "Oh, remember that time when so-and-so worked together with you and you did this? You were a great team on that day." (Excerpt from interview with Lynn, 02-03-12, pp. 2-3)

At the end of the school year, Lynn came up with an idea to share her records, such as photos and video recordings of previous students. She said that she started recording the students' reading in 2005, and those students graduated the year when the study was conducted (2012). While she was talking with their present classroom teachers, they found that those teachers also had some photos taken. They decided to share all the visual data that they collected for those students and burn CDs for them to keep as an "elementary school memory."

This year, the fifth grade has more kids from kindergarten on and our school has been a long time; maybe she said 12? . . . I'm trying to think how many, two fifth grades have been here [in this school] since kindergarten. I've been taking pictures and I have pictures of them [fifth graders] in kindergarten. And so I've been taking pictures. . . . It's been on my home computer and I will take photos off my home computer to put on a flash drive and give it to the fifth grade teachers, so at graduation they [the fifth-grade teachers] can show the pictures of them; it can go really easily into the slide show. Actually, the year that we made fit or the first time; it was the first movie that I ever made. We did sight words. . . . Because I had a boy who did sign language in that year so he came in with some signs that we were supposed to learn; so for him, in the movie, he was in the movie, too. He was doing the signs and I went to take those snips of the kids that I thought were really cute. The fifth grade teacher, they put them in the fifth grade movie. It's really cute to see. I was looking at them last night; they made me laugh. . . . I hope they can use it or I can help them. (Excerpt from interview with Lynn, 05-08-12, p. 8)

What Difficulties Did Teachers Have?

Lynn and Tricia brought up several difficulties using documentation in the public classrooms: Time to record versus time to teach, lack of time to think, lack of budget to purchase equipment to create displays, and difficulties to share with parents.

Time to record versus time to teach. The time issue that Lynn and Tricia raised was that recording students' work and learning occurred during teaching. Both teachers said that sometimes they really wanted to record students' actions or work at a certain time, but they could not because they felt they should stay with other students who needed them. They expressed concern that recording would take time away from their students. Tricia stated, "I want to spend more time with them [the students] rather than doing a 'running record.'" (Excerpt from interview with Tricia, 10-27-12, p. 4)

Lynn also talked about the time issue. She had many students that particular year, and she was not able to do as much as she was used to doing in terms of recording. "It's so hard to get all of it done. I feel like when the class was like last year, the class was smaller, I had a lot more movies" (Excerpt from interview with Lynn, 05-08-12, p. 9). She thought of using an assistant teacher if she gets one next year— she could train the teacher to use video-recording equipment.

If someone is off task, I have to go to them. I have to leave this person [being videotaped] and go to help them. Even having extra two people in the room hasn't been really helpful; it seems like there are too many fires to put out. . . . I will be truthful because I haven't as good as I used to be. Some of them, they can't be with other people, they had to read with me; that stopped me shooting [videos] . . . I'm stuck with kids that can't read with anybody else because they are too wild. I want them to read, so they have to read with grown-ups so they don't get wild. If I have an aid next year, I have to train my aid how to use the video-recorder so I can stay with the group. (Excerpt from interview with Lynn, 05-08-12, pp. 14-15)

Need another person. Along with this time issue, Lynn did not think that extra person was necessary, but it still would be good to have another person to take care of the students while she was recording.

JK: I saw your documentation boards last year in the class.

Lynn: I feel like documentation boards come easier for me when I have extra help in the room. Just get everyone up and plan to run off and to get the pictures taken; it just happens easier for me when there are three of us. So when she is doing a take-over, it's so much easier for me to do that and put that up in the hallway. When it's just me, being in charge and leads lessons, it's hard to take pictures. We talked about that before, too. When she [the student teacher] is doing the lesson, it's easier. I can take pictures of and put them on wall and say, "This is meeting common core standards"—something like that. (Excerpt from interview with Lynn, 03-13-12, p. 3)

Lack of time to think. The teachers said that they should have some time to think about their teaching and to share their thoughts with others. Throughout interviews, Tricia strongly expressed the need to take more time to think about her teaching, as well as sharing her thoughts with other teachers.

Tricia: I think it will help me evaluate myself more. Last year, I did this other thing—teacher collaboration at the university. It helped me think I need to think more—take more notes about what I'm teaching. I do trying to write things up on my computer [thinks about yourself?] think about my lessons as I plan—what changed or what worked better. . . . Because there are times when I'm teaching and I'm like, "Oh, I should do this." I completely changed what I was thinking I would do.

JK: You actually have some time to think about teaching and your lessons?

Tricia: Yes. But this year, it's hard to do that though. I'm more scrambling. I should've done this. I always feel that way [overwhelmed]. I think that it's important. I think that is one thing that I wish to do—that we can spend more time reflecting on what's been successful for us as teachers. It's hard to do that because the district always has new mandates; you always have to think about how we interpret and complete the mandates. (Excerpt from interview with Tricia, 11-15-12, p. 3)

Because she did not have time to get together with other teachers to talk about her own teaching, Tricia found interviews helpful for her to think about her teaching and her students.

It's actually been a lot of fun for me having you here. I think it really helped me thinking about what I am doing and why I am doing it with the students. Even though it was helping your project, it was helping me, too. I really appreciate it. (Excerpt from interview with Tricia, 12-08-11, pp. 7-8)

During an interview at the end of the school, Lynn turned to the student teacher who was organizing students' writing worksheet next to us.

It's venting. It's venting at the end of the day. That's what teachers do. You have to do that because you pick what was good and think about what was bad. Right now, the things that were blared out or louder to me, then things were really good. . . . That comes a little bit later after you have time to think more. And like I said, I thought the girl did really well at that table; she was interested in it. Those kinds of things . . . The other thing that I have to think about more is to see how to scaffold the lesson to make it . . . make them more successful. Because they were very busy. The range is really wide. (Excerpt from interview with Lynn, 02-28-12, p. 4)

Limited budget to purchase equipment. From the first interview, both teachers mentioned lack of money for buying a printer or ink cartridges for making displays (printing photos or documentation boards). I provided some equipment to both teachers as they requested. Still, during the research period, Lynn discussed their tight budgets.

We all have obstacles, like what I've been going through—the cost of printing. Most schools have only one color printer. Unless the teachers go and purchase their own printer or get another one through a grant, they don't have color printers. Now we do all have a laptop. This is new this year. But not all buildings in the town have new laptops. Only some, because they only had enough money to purchase them. What I'm saying is that they are struggling with those obstacles—cost. (Excerpt from interview with Lynn, 05-08-12, p. 2)

Difficulties in sharing with parents. Even though teachers saw documentation as being mainly for parents, the teachers talked about how difficult it was. These were ethical problems and budget issues.

Ethical problems. In terms of sharing photos and video clips of her students, Tricia had ethical concerns. Tricia brought up the idea of using a website to share photos with parents, but worried about privacy issues.

JK: You said before that you are going to burn a CD at the end. Are you including photos, too, or just audio files?

Tricia: It's a little bit tricky to give the pictures. That means I have to ask all the parents if this is okay—to give their child's pictures to another classmate. I think I won't do that. I can give them. What I might do is to give each child a couple of pictures of themselves working, and pictures with friends. Everybody will have a collage—kind of like that. I think it's tricky. You know, even getting the permission slips was hard. I know most of the parents wouldn't care, but you never know. (Excerpt from interview with Tricia, 03-14-12, p. 3)

Lack of money. Although Lynn's class was equipped with various recording tools and a printer bought with a grant, she still worried about buying flash drives (USB drives) to share digital records with parents. At the beginning of the study, Lynn described her attempts to get some money to buy flash drives for every student in her classroom. She had found that burning CDs for everybody took her a long time, and using flash drives would be the best way for her to document for her 26 students—which would be easy and quick. She decided to ask the parents to bring CDs or flash drives if they wanted photos or video clips of their own children. At the end of the last week of school, she said that she received only four CDs from parents. She was surprised by the fact that some parents who didn't provide CDs were ones that she previously had thought actively involved in their children's learning.

Y's mom, J's mom didn't give me ones. I was surprised by them. I sent them [notices] in the newsletters several times. At the end of approaching them, I have lots of pictures and movies from the year. "I'd love to share them with you. If you could send me a flash drive or CDs, I will load them in there and you can have them." Three weeks straight, I put them in newsletter. (Excerpt from interview with Lynn, 05-22-12, p. 5)

What Did Teachers Think about Improving Their Documentation?

In spite of the challenges, the teachers mentioned some helpful ways to do documentation. They discussed recording, thinking, and sharing with parents. They mentioned that they wanted to continue using more various types of records and finding better ways to share documentation products with parents.

Real information and facilitation. From her first encounter with documentation, Lynn said she needed more than documentation strategies. She needed to learn how to get funding (writing a grant proposal) to buy recording equipment. Getting help of a university professor helped her to learn about doing documentation.

When they talked about using technologies in a certain way in the classroom, because we have so little budget, unless we bought it ourselves, we can't even think about doing those kinds of things. With the ideas from the [program] and some money from the fund foundation, that's what got me excited, by the fact that I got those ideas when I attended the workshop and then wrote a grant to get the video camera and things that I needed for the classroom. Both of them are really good programs, but putting them together really helps the teachers in the classroom because our budgets are so small. And depending from year to year, what we get from the state and what would be their budgets or what's happening in the school district. There are other things that we love. I'd love to have an overhead projector in my room or I could have things on the computer and I could project that onto the board. We can do right here in the classroom. That's too expensive. My budget can't allow that. But I might be able to try to write a grant and get a grant and get something going. (Excerpt from interview with Lynn, 03-06-12, p. 9)

Think with others. Tricia continually mentioned needing time to think and to share thoughts about her teaching with others (possibly, other teachers). Tricia joined teacher collaborative groups or other research-related groups to learn and talk with other teachers. She viewed videotaping her teaching as a good learning opportunity to understand and think about her practices and her students.

Lynn talked about the benefits of getting feedback about her practices. She agreed it was a good reflective process to learn about her practices from the video recordings of her teaching.

She said, however, that she needed feedback on her teaching rather than evaluation of her teaching.

What I don't like about that process is that you submit it; they don't give you feedback. You get feedback before you send it in. They always ask you more questions. It's still coming from you; you want them to say. . . . I want them to say things like, "You need more information about this; you need more information about that." But instead, they never tell you what you need and what you don't need. And then, at the end, all you get is scores. You never get what they would you like to change—what they would you like to do more. . . . The process is good and the reflection is wonderful. . . . We'd like to hear more about your standards or what you know about your students. . . . There is no feedback in there. (Excerpt from interview with Lynn, 05-08-12, pp. 11-12)

Tricia agreed with Lynn that this self-training process is a good learning opportunity. She wanted guidance to enable her to think about her own teaching, not evaluation. She expressed concerns about how the videos of her work would be evaluated.

The thing that people didn't like is that you are being evaluated for teaching practices. But you have to be doing something that they say you have to do. . . . If we were really seeing if we are good teachers, it should be what we normally do. I mean it's hard. But I think most of the people are fine. It is a little bit stressful. . . . It's frustrating. It might have been instead of doing it this way [being evaluated by others], maybe we should have videotaped ourselves without the program and do it our own and evaluate that. That would have been better. (Excerpt from interview with Tricia, 11-08-11, p. 3)

Various displays. Tricia mentioned several times during interviews the idea of video-recording students' acting-out stories they created themselves, but it did not happen during this research period. At the end of the interview, she pointed that out as a goal for the following year.

I've already had so much like that I would like to change. There are so many things. There is one thing that I didn't get to do, but really wanted to do, was to get them to act more and make movies of it. I really wanted to do that. In the beginning, just lack of language and lack of understanding, things like that. It's hard because now they have so much more time, but now they really want to write. To have time to write and to act was really difficult because I think for ESL kids, it helps when they act things out. If they read from the script it can help them practice reading in English but also get out of the shell and get out of their silent mode; not to be shy. It could be good for so many different things. . . . I feel like now kids are so much more sophisticated with technology; they like to make movies about themselves; they like to play around with things. So to help them

see themselves in movies is really a neat idea, even for the kids who aren't comfortable with speaking, it will help them speak for something. Because it's safe and it's practiced, they know what to have to say; they don't have to think about it. It could be a good structure to learn more language. (Excerpt from interview with Tricia, 05-17-12, pp. 4-5)

She continued thinking about other forms of displays that she would create for the purpose of sharing with diverse audiences including parents.

I really felt that it [documentation board] would be good to put in the hallway with some work so that people could see kids working and explaining a little bit about the work in hallway. So I actually, really want to use that [documentation board] more. They like looking at themselves. It's definitely something that I want to use more . . . because I can use it for parent-teacher conferences; I just don't have enough time. It would be great if I had more time with parents. I can show them something. I have so little time with them. It's not effective for them. But it could be effective in the hallway to display what they are doing. It could be good for take-home books. Yeah. That might be a bigger part of what we do. I will start the year off for them to help me write about sentences to go with the books— go with photos. What should we tell parents that we did. They know what it says and do that a little bit more. (Excerpt from interview with Tricia, 05-17-12, p. 10)

Efficient ways to share with parents. Both Lynn and Tricia expressed difficulty communicating with parents. At the end of the school year, Lynn planned to send home copies of all the slide shows that she made. Throughout the interviews, she discussed various ideas about the easiest and most affordable way to share them with the families. At the end of the last interview, she said that she decided to ask the parents to send her CDs or flash drives this year because of budget constraints, as well as time needed for her to make copies for each child. She pointed out that she got only four CDs from the parents. To solve the lack of interest on the part of parents, she came up with an idea to get parents' attention—by adding flash drives on school supply list at the beginning of the year.

I'm thinking that in the future, I should put them on a flash drive. . . . If I put in a 4-GB flash drive on their supply list . . . maybe at the beginning of the year, they [the flash drives] might be cheaper, so they could go get them as a school supply. It could be cheaper than buying it now. They could get that. We could put all the pictures on there. I can even recommend some places to get a cheaper one. I think I'll maybe do that. I will

stop by Staples this week and ask them what are the some prices for their cheapest 4-GB flash drive? Put that on my list. I would recommend going here because that would be cheaper. I will stop by Walmart and try there, too. Give them a couple of options that they can use. (Excerpt from interview with Lynn, 05-22-12, p. 5)

Tricia's main concern about parents was some parents' lack of English skills. She felt that some of her parents had limited English, and she could not effectively communicate with them. At the last interview, when we talked about more efficient ways to share displays with parents, she mentioned having a website that parents could access. Tricia mentioned that she thought of giving visual documentation to them because:

I think I need at the beginning of the year, we get permission from the parents and make a little form. I can do that and most of the parents won't mind—"I'm going to take pictures of kids throughout the year, and then recordings. If it's okay, I will make it public to our class." I don't know any details of it. I have to see. It has to be password-protected. That causes a lot of problems for everybody. There are so many privacy issues. Even to make a school directory, you have to get a sign-out form, just to do that. . . . But I know with some kids [who might not have access to the Internet at home], I could print out some pictures for them. . . . Honestly, they would probably benefit from having something printed out, versus from computers. (Excerpt from Interview with Tricia, 05-17-12, pp. 2-3)

Summary

For Lynn and Tricia, documentation is a way to show individual growth as well as a means of sharing products with others, mainly parents. They had preferences for recording tools and various types of displays. Lynn used photos and video recordings to capture students' reading skills and levels of social growth. She made slideshows to share with students and burn CDs to share with parents. Tricia considered portfolios an important display to show students' growth in English writing. The types of content that teachers recorded and documented included academic growth (reading, writing, and math) and behaviors of students.

They emphasized documentation for children. Recording students' work means to students that teachers value their work and promote their learning. Lynn in particular addressed its meaning for children such as celebrating their accomplishment together and kindergarten memory.

In spite of many benefits that they demonstrated, both teachers also reported some difficulties with tight budgets, which restricted them in the purchasing of equipment to create displays and to share with parents. They emphasized lack of time to record, to share such recordings, and to be able to think about their teaching. They expressed a shared desire to have a person who could give them feedback about their teaching and with whom they could share their own reflections.

Chapter 6

Discussion

Bruner (1996) stated that externalization is a way to create a mutual learning environment. In the process of externalizing mental work, students can see, share, and reflect on work and their thoughts with others. It is also a process of meaning making for teachers and their students (Dahlberg, Moss, & Pence, 2007). This study demonstrated that documentation can be a way to externalize students' learning and experiences in early childhood classrooms.

In this section, I first review the documentation process that the five teachers implemented in the two different settings: one lab school K/1 classroom and two public school classrooms. The documentation that the teachers experienced showed a dynamic process: recording, organizing, analyzing, creating public displays, and sharing inward and outward. I also discuss challenges that the teachers faced as well as suggestions to do better documentation at each stage.

The analysis has resulted in a discussion about a need for a deeper conceptual understanding of pedagogical documentation as a way to (a) encourage teachers' collaborative inquiries, (b) represent a collage of group work, and (c) eventually support invisible teaching. Based on the understanding of the process and its deeper meanings, I also discuss the ways to facilitate teachers' use of documentation as part of teaching.

Documentation as Systematic Examination

Pedagogical documentation is *record* and *process* (Dahlberg, Moss, & Pence, 2007). *Record* refers to content and *process* implies use of content as means to reflect on teaching. I found that the teachers in the study used the word *documentation* in unclear ways. First, they did not differentiate between *record* and *document*. Second, they referred to a document as a product

as well as an act of creating a product. In this section, I discuss the meanings of *document* as they differ from *record*. By comparing documentation with research, I then describe the process of documentation and discuss challenges and suggestions for sustainable and better documentation.

Record versus document. All the teachers called documentation the objects that they produced. For example, they referred to photos or video clips as documentation as well as to documentation boards and portfolios. They used the word *document* to refer to “make a record.” For example, they said, “documenting students’ words” instead of “writing down students’ words” or “video-recording what they said.”

Dictionary meaning. As a dictionary term, *document* includes a deeper meaning than *record*. The word *document* is rooted in the Latin word “*docere*,” which means “teach.” In the English dictionary, document as defined as a verb, means “to support by documentary evidence; to furnish with documents, evidence or the like” (New Webster’s dictionary, 1981, p. 294). As one can observe, *document* already includes the meaning of “teach.” The word *record* is a verb and is rooted in the Latin word “*recordari*,” which means “call to mind, remember.” In the English dictionary, *record* means “to note, chart, or inscribe, manually or mechanically, as for the purpose of preserving evidences; to set down in writing or register in some permanent forms; to indicate; to set down, register, or fix by characteristic marks, incisions, or magnetic pulses, often for the purpose of reproduction by a phonograph or tape player” (New Webster’s dictionary, 1981, p. 800).

Notably, both words include the meaning of *evidence*. The difference is that *record* emphasizes an act of keeping or producing evidentiary substances like taking pictures to remember while *document* includes the meaning of using evidentiary materials. In terms of its

word's root, *document* is more to *teach* with *evidence*—teach as in “to give instruction to; to guide the studies of; to impart the knowledge of; to train; to give skill in the use of; to instruct by implying” (New Webster's dictionary, 1981, p. 1007).

Documentation and research. Researchers study phenomena and make a generalized assertion on the studied events. Teachers study their own practices and students in order to produce usable knowledge for themselves (Anderson, Herr, & Nihlen, 2007; Catapano, 2005; Edwards, 1998; Hong & Trepanier-Street, 2004; Kroeger & Cardy, 2006; Rinaldi, 1998). The difference is that teachers study phenomena in contexts where they are situated while researchers study other people's actions, thinking, or events that they are not part of.

As one does not see research simply as an act of producing a written report, documentation is not an act of making records or creating displays. As research is a systematic examination of a subject, documentation is a teacher's investigation of their own students and practices through systematic procedures.

A researcher writes a narrative report to readers to distribute generalized knowledge. Teachers create various kinds of displays to share with audiences. Teachers put emphasis on sharing their findings and interpretation with specific audiences, mostly parents and students, and possibly with other people involved in educating children. While research production is a form of narratives, teachers create various types of displays such as documentation boards, CDs, or portfolios.

Research is a systematic process: collecting data, managing data, analyzing data, writing reports, and reporting. I found that the documentation process that the teachers showed was similar to the research process. Figure 1 illustrates five stages in the process of documentation: recording, organizing, analyzing, creating public displays, and sharing.

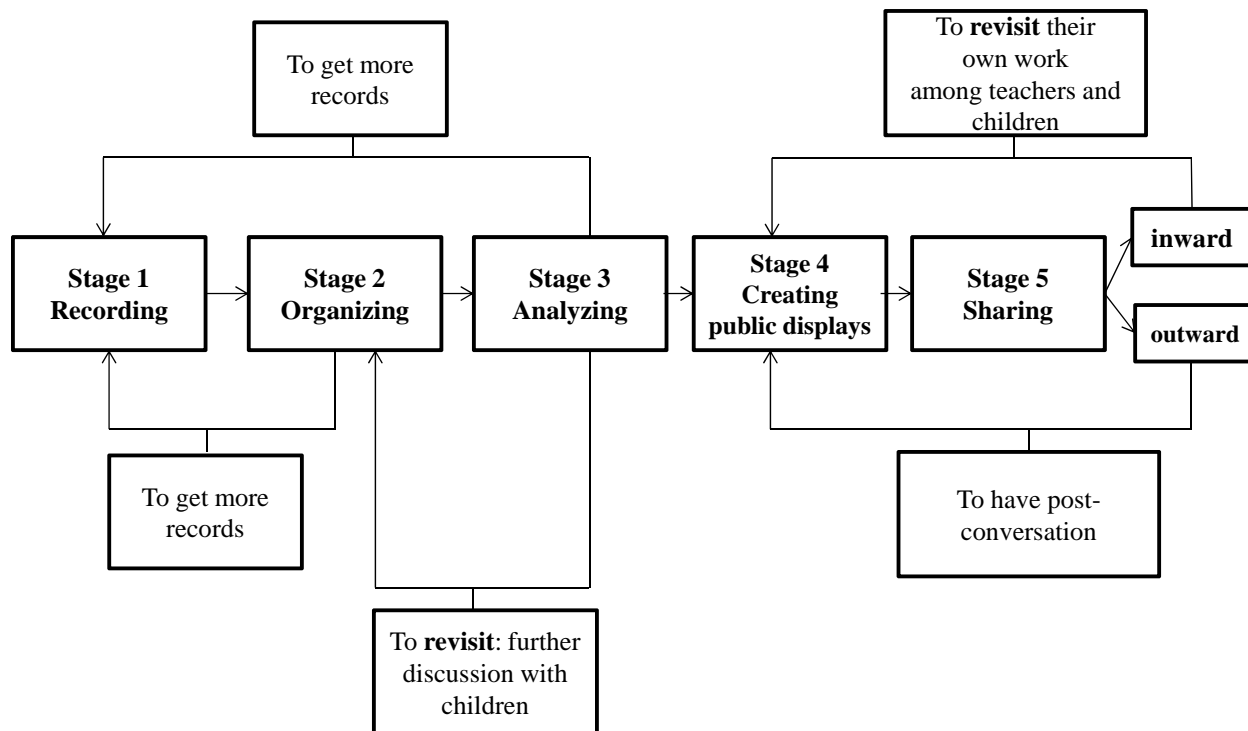


Figure 1. The process of documentation.

Stage 1: Recording. The first step is recording. Recording is collecting data. Researchers collect data through various methods: handwriting, collecting artifacts, taking photos, or video recording. The teachers recorded the study by taking photos, video recording, audio recording, typing and writing, and collecting students' work samples.

Recording various contexts. The teachers recorded a variety of what happened in the classrooms in academic areas and in everyday events. The teachers' recordings comprised of (a) photos of art activities, class/school events and working with materials, daily activities, students working together, project work (e.g., field trip, creating a representation, and discussing), and written discussions, (b) videos of class events, students reading, project work (e.g., field trips and group discussions), student behaviors, and teachers teaching, (c) audio records of students reading books, (d) children's artifacts of writing, artworks, drawings, and math worksheets, (e) typed and handwritten records of children's words as they were spoken, and (f) typed records of

teachers' words about individual students' progress (see Table 3). Interestingly, when I examined the collection of photos by Lynn and the teachers at Washington Primary School, I found numerous photos of students' works. These works otherwise could not be saved, for example, students' building blocks and pattern blocks.

The teachers, however, had specific areas that they focused on recording. They frequently talked about those focused areas during interviews. For example, at Washington Primary School, all three teachers focused on recording the students' discussions of the project. At Lincoln Elementary School, both teachers focused on recording students reading books by themselves and with friends. Specifically, Lynn recorded students' reading behaviors (e.g., holding a book appropriately, pointing at the words while reading) as well as their reading progress (e.g., recognizing words or sentences). Tricia focused on students' English skills of reading and writing.

All the teachers emphasized recording students' social skills and interactions—children working together and helping each other. For example, Lynn noted that standardized test results or checklists required by the school record “numbers” and focus on the “individual.” She noted that video recording and photos show “relations.” These records were more narrative, contextual, and descriptive than abstract numbers. Even Tricia, who did not think that photos were suited to capture students' English skills, used photos to record the students' social relationships. She reasoned that although photos do not represent their English skills, the kids were in primary grades, and they should begin to learn social skills. The focused areas led to teachers' choices of recording tools.

Teachers' preferences of recording tools. The teachers utilized a variety of recording systems from collecting students' artifacts and handwriting to digital recording.

Table 3

Recording a Variety of Content

Records		Content	
video-records		class events	project work (e.g., fieldtrip and expert visits)
		reading alone/with friends	students' behaviors
		students' small group discussion	teachers' practices
photos		art activities	daily activities (e.g., lunch time, outside playtime)
		center/choice time activities: working with materials (e.g., blocks and manipulative)	project work
		class/school events	relation/working together
			students' behaviors
			writing
audio-records		students reading books	
written records of students' words		small group discussion	whole group discussion
written records of teachers' words		individual students' progress in five learning domains (transition form and portfolio selection)	
students' individual samples	work	art work (drawing, painting, field trip)	study group discussion
			writing
			math worksheet
Behavior checklists		individual child's behaviors	

All the teachers mentioned that ease of using these tools was important in their selection of equipment. The efficiency of each tool in order to capture what they focused to share with parents seemed to affect mostly teachers' preference of equipment.

For example, the teachers at Washington Primary School focused on recording what the students said during project time to develop the project. Video recording, typing, and

handwriting students' words were the main recording methods. They emphasized capturing the exact words of the students. Holly mentioned that she preferred video recording to handwriting because she was able to focus on students' words and interact with them without the distraction of writing down their words. She also thought that video recording could capture the exact words of the children at that moment while handwriting could possibly incorporate a teacher's interpretation, rephrasing, or rewording of the students' words. Mary and Lauren agreed on the advantages of video recording to capture actual children's words. These two teachers, however, rarely used a video-recorder because this recording tool requires extra time to download to a computer, to review, and to transcribe it for later use in creating displays.

At Lincoln Elementary School, Lynn favored using photos to capture the relationships among the students and a video recorder to record students' reading skills and behaviors. Lynn also preferred the video recorder because of its easiness to share with the parents. Tricia, on the other hand, did not find photos as a good recording system for her ESL students. The purpose of an ESL classroom is to improve students' English skills. She said that pictures were unable to show the students' language progress. As a result, she preferred collecting students' writing samples. She also used an audio-recorder built in a computer to capture students reading books. She said that the audio recording software made it easy to record students' voices as it shows waves when reading. The students could self-adjust their voices by observing the waves that helped to capture good sound.

Exploring recording tools and their associated benefits is an initial step in the process of documentation (Seitz, 2008). Specifically, recording with technology has advantages or disadvantages for teachers (Kroeger & Cardy, 2006) in terms of cost, ease of operation, ease of reviewing, sharing with others, curriculum development, and aesthetic qualities (Pollman, 2000).

Technological difficulties are common challenges in documentation that teachers reported in other studies (Buldu, 2010; Kroeger & Cardy, 2006) such as time to learn about technological tools and cost of purchasing recording equipment and materials. I emphasize that along with exploring pros and cons of technology tools, teachers should also think about the appropriateness of each tool to capture what they want to focus on in their classrooms.

Stage 2: Organizing. Records should transform into a certain structure. Using the terms “raw data” and “data record,” I suggest that be regarded as raw data and systematic organization of records be viewed as data record. Graue and Walsh (1998) distinguished “raw data” from a “data record.”

The data record is constructed from the raw data generated in the field. The data record results from transforming raw data into a form that is organized (that is, easily accessible) and flexible (that is, accessible in many ways). . . . The notes one takes, the drawings one makes, the tapes one records, and so on, in the field are raw data. . . . When audiotapes are transcribed or when videotapes are logged, they become part of the data records. All raw data need to be worked on before they can be analyzed. (pp. 131-132)

Constructing data record makes raw data “easily accessible and flexible, accessible in many ways. . . . It turns abstract information into concrete data” (p. 145). This stage focuses on making records into workable formats before analyzing. “Without a robust data record, analysis is not well-grounded interpretations, . . . Whether or not the final research report is well grounded or justifiable depends on every aspect of the research process, from planning through writing” (Graue & Walsh, 1998, p. 144).

The common ways to organize records that the teachers performed were downloading digital data (photos and video records), categorizing, transcribing, typing, formatting, printing out, digitalizing (scanning), filing, and binding (see Figure 2). Teachers downloaded or printed out digital records such as photos and video records. In addition, they downloaded, reviewed,

listened to, and transcribed video records, and printed out the excerpts of transcription. Students' words were written or typed. Students' work samples were kept track, digitalized (e.g., scanned or photo copies), and filed to portfolios.

At the Washington school, the teachers used certain systems to organize data. For example, the teachers downloaded photos and video clips from a camera and video-recorder through I-photo software to teachers' computers. The teachers organized the digital data into different formats through Photoshop. This program facilitated photos organized by sizes and dates. They printed out thumbnail-sized photos and filed them to the Webgal book. For portfolios, the teachers filled out a form, called portfolio selection. The teachers selected one or two photos in development areas and wrote short descriptions of students' growth. Each student had five folders in each learning area, which included sorted and selected work samples.

At Lincoln school, Lynn had her own organizing system. Her main records were photos and video-clips. She downloaded digital records (photos and video-records) into her laptop computer. Using the software, I-photo, she organized them into categories according to events. She gave a descriptive title to each category, and she made the organized data into a slideshow using I-photo. Tricia's main records were students' work samples. She filed students' artifacts to individual students' folders.

Stage 3: Analyzing. Spradley (1979) explained, "Analysis of any kind involves a way of thinking. It refers to the systematic examination of something to determine its parts, the relationship among parts, and their relationship to the whole" (p. 93). The systematic analysis brings "meaning to those data and displays that meaning to the reader through the written report" (Marshall & Rossman, 1999, p. 152-153).

A collection of records itself does not explain the meaning of the events. For valid accounts, teachers should analyze, interpret organized data, and make meanings. Teachers should take time to think about various aspects of what happened in their classrooms through organized records. The teachers in this study thought mainly about three aspects: (a) students' growth as authentic assessment, (b) their own teaching, and (c) creating public displays.

Authentic assessment of students' learning. As many studies about documentation focused on its role of authentic assessment, this study also showed that documentation can be a way for teachers to think about students' growth. The areas that the teachers thought about students' growth were diverse from academic development such as math, reading, and writing, improvement in behaviors, positive behaviors, students' engagement in learning, and so on (see Table 4).

For example, by going through the time-1, -2, and -3 drawings of the ball ramp designs, Mary was able to see students' critical thinking in designing the ball ramp (i.e., how to get the ramp up, if we can use robotic arms, and if we can use spring to back the ball up to the top). Holly referred to what she found about J's expressing the idea from her study-group discussion video of interviewing curators: his level of depth in questions that he contributed to the group discussion, active engagement in the group investigation, and his discoveries (learning) throughout the project process.

By reviewing the collection of students' video clips that Lynn recorded quarterly, she was able to see students' growth in reading books (i.e., the level of books that a child read over the year, recognizing words or sentences). For Tricia, going through collected writing samples, she was able to see students' growth in writing and thinking.

Table 4

Why Did Teachers Do Documentation?

For students' revisits	For collecting information	For promoting students' learning	For fun	For memory	For proof/evidence	For sharing	For teachers' revisits (lesson planning)
further discussion	about students' progress	importance of children's works	like to see themselves in photos and videos	class memory	for parents	with parents	to see children's responses
learning community	about instruction	feel proud of		school memory	prove children's progress	with outside visitors	documentation as a road map for follow-on lessons
	about teachers' teaching	appreciate product as well as process	like to share with their parents	souvenir for students	children's behaviors	with community	
	progress in writing and reading	have them feel important		review school experiences at home	engagement in learning	with other teachers	preparing next questions
	running records	incentives		remind what they learned	the truth	with students	seeing the process of next direction of project
		exceptional/memorable job/even better		relation with friends	concrete evidence		self-reflection
		celebrating/accruing positives			authentic way to see students' growth		getting feedback on teaching
		recognition by others			students' school life		
		teachers' value			accountability		
		practice of skills					

The records also provided teachers an opportunity to see students' hidden aspects that they otherwise could miss. For example, Holly discussed her understanding of E's behavior during discussion. She thought that the boy did not pay attention during her study-group discussion and might have behavior problems. By reviewing the video clips, Holly, however, found that even though he did not sit still for the entire discussion, E was paying attention and responding to his friends' ideas. Although her initial focus for reviewing the video clips was to transcribe what the study-group said and to think about the group's ideas, she also was able to see the students' engagement in learning. She said that this finding changed her perspective on E.

What teachers analyzed with records was not what traditional assessment tools represent (Helm & Gronlund, 2000; MacDonald, 2007b). Traditional assessment focuses on mastery of certain skills based on products rather than the child's developmental process. Teachers' analysis focused on process "to emphasize and strive to portray how children process information, construct new knowledge, and solve problems" (Gullo, 1994, p. 81). This assessment emerged from the process of documentation rather than predetermined (Buldu, 2010; Dahlberg, Moss, & Pence, 2007).

Authentic assessment is ongoing and cumulative, has an open-ended format, utilizes various settings, and teachers see it as supporting good practice (Chittenden, 1991). During the documentation process, teachers perused multiple records and conducted on-going analysis of those records. Accumulated interpretation and thoughts through organized records can provide teachers valid and concrete evidences for their assessment on students' growth and learning.

The teachers' interpretation on students' growth through records were presented in portfolios and shared at parent-teacher conferences. This authentic assessment increases the

depth of conversation with parents (Boardman, 2007; Buldu, 2010; MacDonald, 2007b; Vakil, Freeman, & Swim, 2003).

Teachers' self-study of teaching. Holly, Tricia, and Lynn video recorded their teaching. Holly's motivation for video recording her teaching practices was part of her action-research class project. At Lincoln Elementary School, because of the National Board Certification, Lynn and Tricia also had to video record their teaching. Although these three teachers recorded their teaching because of outside inspiration or requirements, the teachers were able to see the value of this recording system for analyzing their teaching. Teachers thought about their teaching through records in two ways: as self-reflection of their own teaching and guidance for next lessons.

Self-reflection. Holly said that the research project inspired her to video record herself, but she would continue to use this method as "self-reflective" about her teaching. While reviewing and transcribing the students' conversations, she was able to determine her own needs to improve teaching. For example, Holly mentioned that she would need to express more facial expressions when talking to the students. She also said that she got self-confidence in her teaching. The semester was her second year of teaching in the school based on the Project Approach and that she had struggled with her teaching in the previous year. While reviewing the video clips, she felt that her skills in facilitating the small-group discussion improved compared to the previous year and had become more confident at what she would do with students.

Tricia agreed with Holly's assertion that video recording was useful for self-reflection and saw it as promoting student communication in the ESL classroom. She also said that she would continue to use video recording in her teaching as a means for self-reflection. Lynn also appreciated the benefits of recording her teaching. For example, by reviewing the video clips, she felt that she initiated the conversation more so than the students did. She also was able to

think about the need to support the students' sense of independence, to challenge the students who were at a higher level, and to use the room more efficiently.

Road map to guide a lesson. The teachers at Washington school frequently mentioned the importance of recording and using what students said in their group discussions about the development of the project. Mary, Holly, and Lauren emphasized reviewing the records of students' words to lead further discussion of the project. Holly described reviewing video-records as a "road map" to prepare future lessons. Reviewing the video clips of her study-group discussion helped her to prepare the questions and lessons for the next study-group discussion.

It seemed that the teachers were able to see students' growth by reviewing what they recorded. They mainly used the analysis of students' learning as the concrete evidence with parents, mostly at parent-teacher conferences. I, however, rarely observed that the teachers used the results of students' progress for their next lessons except for the project-related lessons at Washington school.

I argue that teachers' analysis of students' learning development should be used not only as evidence to prove students' growth but also to think about instructional guides to help students grow from what the evidence would show. Gullo (1994) pointed out the use of assessment through students' work for curricular activities, "if used appropriately, alternative assessment procedures provide concrete, systematic means for curriculum modification, not only to meet individual student's needs, but also for recognizing 'what works' and 'what doesn't work'" (p. 86).

Recording students' work and teachers' teaching can be a helpful tool for them to consider instruction guidance. This permits them to respond to students' needs as well as to

continue to develop professionally as teachers (Goldhaber, 2007; Hong & Trepanier-Stree, 2004; Kroeger & Cardy, 2006; MacDonald, 2007b).

Creating public displays. The teachers considered what to include in the displays and how to represent them. All the teachers focused on representing students' growth. At Washington school, the teachers also focused the project on content. The main display formats were portfolios and documentation boards for the teachers at Washington school, portfolios for Tricia, and CDs for Lynn.

Focused content. The teachers focused on showing students' progress through portfolios and representing the process of the project at Washington school. Documentation boards on which the teachers focused their discussion during the interviews were about the process of the project. They represented understanding that they gained throughout the project, trial-and-error to explore materials of representation to make children's ideas work out, problem-solving, work in progress, students' involvement in the project, children's interests in the project, and so on (see Figure 2).

During the parent-teacher conferences, the conversations through portfolios about project focused on individual students' contributions²³ along with growth in other areas (e.g., literacy, math, and social/emotional development). While discussing students' participation in each study group, the teachers addressed various aspects such as higher-level thinking, critical thinking, problem solving, and engagement in learning. Holly additionally focused on showing what her math-study group did and learned. She created display board and a music video with students. Her math portfolios represented individual's growth in context²⁴.

²³ For further discussion of individual's contribution to group learning, see pp. 242-243.

²⁴ For further discussion of individual learning context, see pp. 246-247.

The teachers at Lincoln school also created public displays by collecting students' work samples to show the progress in specific areas (e.g., reading and writing). Tricia's portfolios represented her ESL students' growth in English skills. Tricia also thought of creating CDs to include the stories that students recorded as a way to show the growth in the reading of individual students. Lynn's public display (slideshow) included visual images of students' reading and writing. She thought about each student's readiness for the first grade in terms of reading and writing skills. In addition, she emphasized students' classroom behaviors (e.g., focusing on tasks and sitting still) and social skills (e.g., working together and peer relationships).

Learning in literacy and development in social skills are typical concerns of early childhood teachers (Elliott, Gresham, Freeman, & McCloskey, 1998; Lane, Wehby, & Cooley, 2006). These concerns relate to school success in academics (Agostin & Bain, 1997; Gresham & Elliott, 1993; Xue & Meisels, 2004). Educators' assessment of literacy is predicted mostly on standardized tests or traditional assessment (Agostin & Bain, 1997; Xue & Meisels, 2004).

Public displays of group work. The teachers displayed and shared the products that they made through the process of documentation with audiences. I emphasized the word *public* defined as "not private; pertaining to the whole people" (New Webster's dictionary, 1981, p. 772). Public refers to being about the whole people. Public displays through documentation process are to show the story related with what the whole group experienced, did, or learned. These public displays were what teachers shared with audiences.

Public displays show about the whole people. I argue that public displays should contain group work of the people who did it together. Lynn stated that her photos and video records represent "relations," and Tricia focused on recording students working together through photos. I, however, emphasize that the group learning represented in the process of documentation is not

the opposite of individual learning, nor does it solely emphasize the development of social skills. It also does not mean “cooperative learning” or “team leaning.”

Group learning represents the convergence of collaborative learning to accentuate mutual construction of understanding through teachers’ scaffolding and students’ cognitive conflict through discussion (Roschelle, 1992). Moreover, group learning signifies the synthesis of individual learning, small-group learning, whole-group learning, and learning with adult facilitation.

For example, consider the documentation boards at Washington school (see Figure 2). The documentation boards show a project: individual work such as writing samples, photos, drawings, video clips, small-group works such as written work of small-group questions and discussion, small-group 3-D representations, large-group work such as written large-group discussion, video clips of group discussion or performance, as well as work with adults. By combining the work of different kinds of groups, selected intentionally by teachers and possibly children, documentation boards are able to communicate to audiences about the stories of students’ experiences and processes of learning in the situation.

Portfolios are another form of public displays that I discuss in this study. Portfolios are about individual students’ growth. I argue that portfolios as public displays in documentation process should include the whole story of group work because children cannot learn by themselves. The group work provides the context of individual students’ growth. (I will discuss this later in the section.)

Holly’s portfolios for her study- and math-groups showed individual students’ learning in context by combining an individual child’s work samples with group work (e.g., written group discussion and a photo of documentation boards). In math portfolios, Holly also displayed the

objectives slides of the measurement lesson (teachers' commentaries) along with the individual child's written words and corresponding photos (e.g., exploring measurement tools and measuring objects with measurement tools). The teacher's work, to include lesson goals and written records of the group discussion, can provide the context that the child is learning. By showing the process of learning and not just the product, Holly stated that she attempted to illustrate what J learned instead of simply the activity that the child completed in the class. By referring to the child's words in the study-group discussion (excerpt from the videos), Holly was able to address J's strengths in thinking and his contribution to the idea group discussion development.

Public display is an important concept in this study. Teachers share these specific displays with audiences; they allow shared and negotiable ways of thinking in groups, leading to productive lively discussions (Bruner, 1996). I will discuss these two important aspects in a later section.²⁵

Intentional choices. Erickson explained selection of content in research analysis as "valid account is not simply a description; it is an analysis. Within the details of the story, selected carefully, is contained a statement of a theory of organization and meaning of the events described" (Erickson, 1986, p. 150). As Mary said, "We've collected [records], but that does not mean I am using [all of them]." Dahlberg, Moss, and Pence (2007) discussed, "What we document represents a choice. . . . 'There is never a single true story'" (p. 147). Specifically, the teachers intentionally selected students' work samples, photos, or other visual images and combined them into a certain format to represent their beliefs about the importance of students' learning.

²⁵ For further discussion, see sharing *inward* and *outward* in pp. 205-209.

At Washington school, after the culminating event, I asked the teachers why they chose the specific photos and content on the documentation boards. All three teachers emphasized that they made sure to include students' work samples, words, or photos to illustrate their participation in the project. They stressed that including all the students would not mean to include all the same students' work or words; instead, they selected visual images, students' work samples, and students' words (e.g., questions, answers, or ideas) which they thought to be most "representative" of the group work. For another example, Mary explained that the reason she selected O's drawing for the documentation board of the interactive-art group was that she thought that the design was representative of the initial group idea on how to build the ball ramp. Based on O's design (and others' work), the group made a trial-and-error to build the actual ramp by exploring different materials.

Holly and Mary discussed ways to visualize efficiently on documentation boards. They emphasized fewer texts and more visual records for documentation boards to be communicative. Lauren, however, reported that careful selection among many records was difficult, especially "deleting" records. She felt that she had several good records to indicate what her study-group accomplished, experienced, and learned during the semester, and she thought that nine slides limited such information. Lauren discussed her difficulty to choose the appropriate number of records to fit into nine slides of documentation boards. Buldu (2010) confirmed this sentiment by indicating that the teachers in his study reported difficulties in choosing which data to display in one documentation panel.

As a result, the teacher should continue to consider how to show efficiently focused content in a restricted space. Dahlberg, Moss, and Pence (2007) mentioned that the selection-making process provides opportunities for teachers to have open discussions. "Therefore it

enables us to see how we ourselves understand and ‘read’ what is going on in practice; with this as a base . . . they become researchable and open for discussion and change” (p. 147).

The selection-making process provided opportunities for teachers to see students’ strengths and their engagement in learning. Teachers found that some students had an increased number and quality of words recorded in project discussion while they rarely found such attributes in students’ concrete artifacts (e.g., drawings). The students were more proficient and more interested in representing their ideas verbally than through artifacts. Others appeared in more pictures of making a group representation than any other students because they were actively involved in creating representation.

For example, when making documentation boards for the study group, Lauren said that she made sure that each learner’s engagement in the study group showed through the documentation boards. While checking different records to select, she learned that one girl had few records of her verbal words. Lauren reflected that the girl did not express her ideas verbally; therefore, she included her drawing instead in her study-group documentation boards. The teacher said that she tried to include any words that the girl stated about the project work in the documentation boards. Lauren also noted that another girl had the most records of words because the student participated actively in the study-group discussion. Lauren reflected on the written records of the girl’s words and saw that she had many good ideas.

Going back to recording (stage 3 to stage 1). While the teachers interpret organized records, they may need more cases of evidence to support their thoughts; they can return to stage 1 to record the intended contents to obtain more instances (see Figure 1). Similar to Lauren’s findings about students’ engagement in the project while selecting records for creating displays, teachers can consider why a student does not have ample records in certain areas or vice versa.

In this way, teachers can plan for students to participate in those learning areas based on their teachers' findings.

I must emphasize that this selection process should occur regularly. At Washington school, this choice process occurred just prior to the culminating event or parent-teacher conferences, which was usually the end of the project process. As a result, Lauren was not able to return to recording stage because she had completed all the project-related activities by that time. If this selection process occurs regularly, teachers could accumulate valid and meaningful records of students' learning.

Stage 4: Creating public displays. A researcher represents his or her analysis through a written report. This report is in narrative form. For documentation, products take various formats. The displays created by the teachers in this study included documentation boards, portfolios, websites, DVDs/CDs and so on. The main formats that the teachers focused on creating and discussing were portfolios and documentation boards for Washington school. At Lincoln school, Lynn created CDs for a slideshow, and Tricia produced portfolios for individual students.

Multiple records to produce public displays. All teachers mentioned that they should work to improve their skills in creating diverse types of public displays. While Mary and Holly mentioned that they were proficient at recording students' work and verbal words as well as collecting data, they also indicated their use of those records was an area where they should improve. The teachers at Lincoln school also expressed that they should use more records (especially photo and audio records) in creating various displays such as documentation boards and websites.

“A robust data record is multi-dimensional. . . . Rich data records present many perspectives” (Graue & Walsh, 1998, p. 133). Flick (2007) discussed the importance of using different sorts of data in research to “produce knowledge at different levels, which means they go beyond the knowledge made possible by one approach and thus contribute to promoting quality in research” (p. 41).

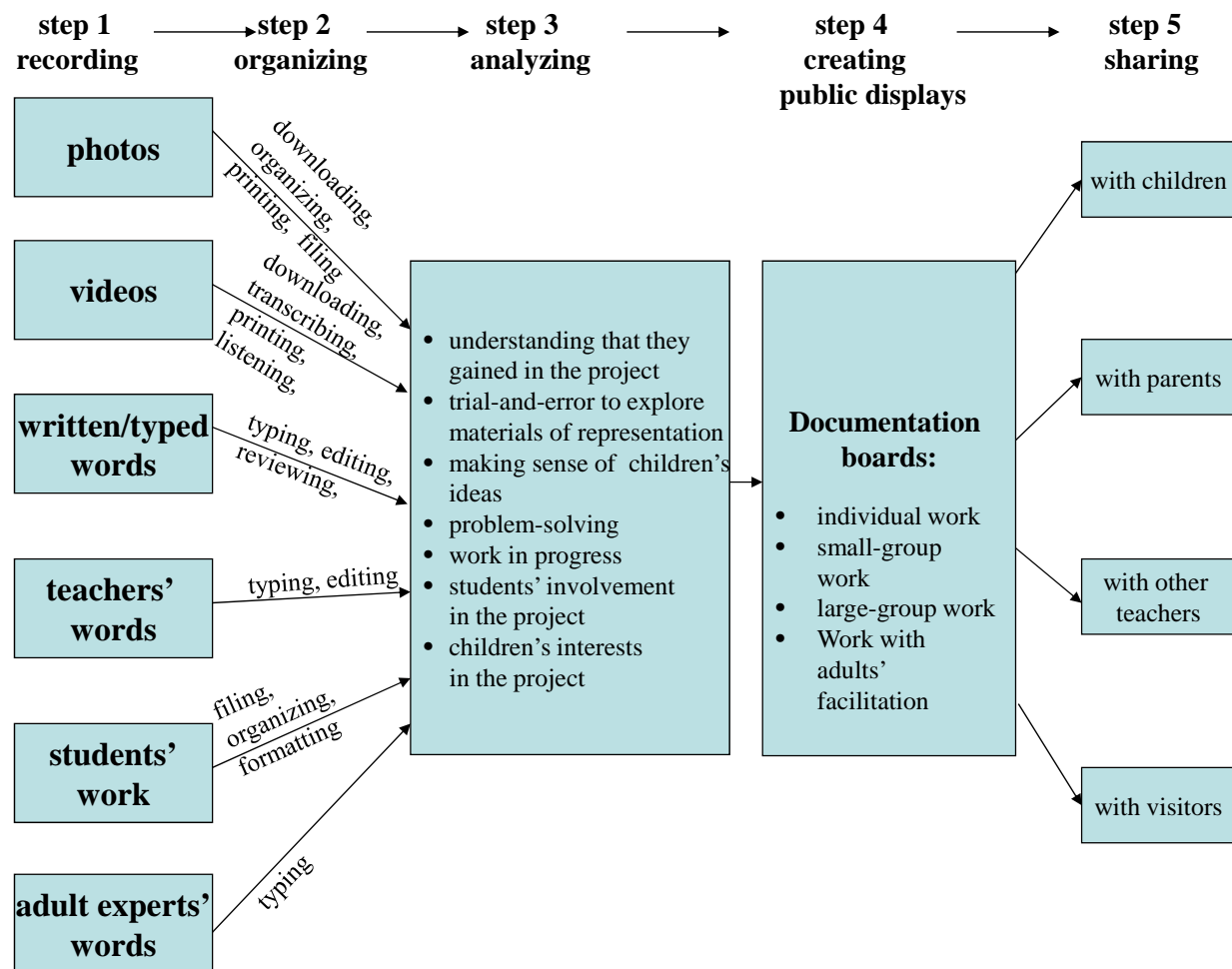


Figure 2. The process of documentation: An example of documentation boards.

Figure 2 illustrates examples of various records used to create documentation boards at Washington school: photos, excerpts of students' discussion from video records or typed/hand-written records, teachers' typed words, and scanned students' drawings and writings. Portfolios included various work samples. The portfolios at Washington school included photos, students'

artwork, portfolio selection forms, transition forms, hard copies of PowerPoint slides, and result sheets of standard assessments. Various records enrich the stories. I will discuss these in a later section²⁶.

Different formats for different audiences. Teachers should consider using different forms of public displays for different audiences. Mary emphasized that good documentation should be communicative to audiences and that teachers should investigate displays for broader ranges of audiences. The school is a lab school to consider many visitors such as scholars from other countries or people from the local community.

Teachers shared documentation boards with parents, children, and local visitors at the culminating event. Some of the documentation boards had been shared at professional educational conferences and were displayed in hallways for visitors. The documentation boards, which consisted of printed-out PowerPoint slides, were displayed mostly in the classrooms.

At Lincoln school, Tricia and Lynn still focused on parents as a main audience. Tricia focused on sharing the growth of individual students in English skills with the parents through portfolios. She also thought of utilizing a website to share students' work with her children's parents because her parents rarely visit the class. Tricia particularly considered some of her parents who lacked English skills and thought that a collection of photos would be best to share their children's learning. Tricia also considered the family background. Some of her students who did not have computers and Internet access at home; therefore, she considered offering physical photos in the form of a photo book for those parents. Lynn mentioned that she would create documentation boards to share with visitors, other students, and teachers in the school. She investigated various ways to share students' work with them and their parents. Her goal was

²⁶ For further discussion about importance of group work, see p. 245.

to devise the easiest way to share visual records with the parents. This aim involved finding a method for her to make copies of the visual data faster and for parents to buy the device (e.g., flash drive) more cheaply. Lynn and Tricia also discussed using a website to share with their parents. They, however, considered privacy issues in posting visual images of students on the website. In this regard, the teacher might be inhibited from considering the format as a public display.

Considering audiences is an important element in creating public displays. Helm and Helm (2006) provided guidance to analyze audiences for documentation such as parents' educational level, language, ethical background, age of parents, and job schedule. According to audiences, public displays should represent relevant messages with an appropriate amount of information. Additionally, they should include succinct texts and large images to draw readers' attention (Helm & Helm, 2006).

Stage 5: Sharing with diverse audiences. As Holly stated, the portfolio itself is *cold*; it only becomes *warm* when people discuss and connect with the portfolio. In this regard, all the teachers considered sharing with audiences as an important purpose of documentation.

Sharing can be described in two ways: *outward* and *inward*. *Sharing outward* is for audiences who are outside the context: parents, visitors or other teachers. *Sharing inward* is with people who have participated in learning, captured in records, or represented in public displays: teachers and children. Each way has different purposes. For example, sharing outward is to invite the audiences to the activities of class through various displays. Sharing inward, also known as *revisit*, is to discuss further the activities of children and teachers through records and public displays.

Sharing outward. Documentation boards displayed in the hallways were directed for visitors. The design of the school website was for outside audiences including the parents. In this way, the teachers at Lincoln school noted that other possible audiences were other class teachers, students, or visitors in the building, or school administrators such as the superintendent. The teachers, however, reported that visitors from outside Lincoln school were not common.

With parents. All the teachers agreed that public displays provided evidence of students' learning and growth (see Table 4). At the parent-teacher conferences, teachers used portfolios as a basis for conversation at both sites.

Public displays at the parent-teacher conferences facilitated reciprocal conversations between teachers and parents. This seemed more effective than teachers merely reporting the teachers' analysis of students' work. It was interesting to see some parents actually direct the conversation about their children based on the documentation. For example, at Washington school, O's mother realized that her child was in the interactive study group by observing her project portfolios. The conversation between the teachers and O's mother began with the mother's describing how her child became interested in machines. She recalled conversations with her child about the machines that they saw outside of the school, and she initiated the discussion by choosing O's drawings of the ball ramp in the portfolio. The teachers answered the mother's questions and shared their perceptions of O's thinking level and contributions in the interactive study group. This conversation, which included observing O's design drawings, lasted for almost half of the meeting time. Documentation provided an effective base for conversation between teachers and parents; it is much richer than the teacher's interpretation of O's progress (Bersani & Jarjoura, 2002; Goldhaber & Smith, 2002).

At Lincoln school, it is also interesting to note that teachers did not want to include certain records in the public displays. Tricia initially planned to share CDs including audio records, photos, and other student work. She, however, decided not to share these with parents because she feared the parents would judge her teaching. The research was conducted during her first year of ESL teaching (she previously taught upper-grade students for several years), and she was not yet confident in her performance with the students. Lynn also mentioned that she did not include video clips of her teaching into the CDs because she thought that some children in the video clips were not prepared for learning. She did not want to show students' lack of readiness to parents. Moreover, she also thought that parents would want to see their children's work or children's images, not the teacher.

The goal of documentation, however, is not to evaluate teaching but to "present the wisdom of the teachers" who orchestrated students' learning (Feinburg & Mindess, 1994, p. 3; Bruner, 1996). I will discuss the importance of representing teachers' facilitation in documentation later in the section.

Sharing inward. The term *sharing inward* can replace the word *revisit* because students and teachers previously visited or experienced the context. The teachers at Washington school frequently used the word *revisit*. Reviewing their experiences in situations through various organized records and public displays is the same as revisiting the experiences.

Revising versus remembering. The important issue of *sharing inward* is to differentiate between remembering and revisiting. Teachers at both schools mentioned that a goal of documentation was to help students recall and remember what they learned in school or with whom they worked (see Table 4). Sharing inward is more than for remembering the past. The

important aspect of *sharing inward* is its cycle of inquiry, which can be described as *revisiting*.

Forman and Fyfe (1998) differentiated *revisiting* from *remembering*.

Teachers of young children can serve as a memory, a record of an experience that can be revisited. . . . But revisiting is more than remembering. Revisiting is just that return to a place of significance for the purpose of reestablishing friendly relations and establishing new relations, like going to one's hometown after a long absence. . . . The teacher carefully chooses memories that will draw the children into conversations about something that was unresolved or an incomplete action. It is the intent of revisiting to take children further and not simply list the places they have been. (pp. 247-248)

Revisiting is not just memory. Instead, revisiting requires a teacher's intentional selection of records for their students. Most importantly, teachers and children should discuss the occurrences of the past in order to construct a new interpretation and reconstruction of the memories (Dahlberg, Moss, & Pence, 2007). Documenting is pedagogical and revisits evidence of what students completed, learned, or experienced in school in order to draw inquiries and dialogues of children, teachers, and others about learning. Revisiting is an important process of documentation.

I, however, found that public displays such as documentation boards were not used for teachers and students to revisit (going back: stage 5 to stage 4). The teachers in the study showed revisiting only through organized records to further discussion of the project (going back: stage 3 to stage 2). By discussing revisiting through records, I argue the meaning of revisit and emphasis of revisiting through public displays.

For example, when comparing the ways to share video clips with students between Lynn and Holly, there is difference between remembering and revisiting. For example, Lynn showed a slideshow of students reading, and she talked with the students about good reading behaviors. Her purpose was to review reading behaviors and to celebrate positive attributes. Moreover,

Lynn's comments and questions were the same as the class-rules poster (see p. 142), which noted reading alone and with friends rather than discussing new ways for good reading behaviors.

At Washington school, the project evolved based on students' inquiries. The facilitation of further dialogue among students, teachers, and other experts was a key approach in developing the project. As Holly emphasized, revisiting can add purpose to students' learning. Students and teachers revisited students' discussions on the project through records. For example, in an effort to further enable student discussion and obtain ideas for follow-on questions on what they required to create their own art gallery, Holly purposely chose and showed video clips of students' conversations with the experts and photos of their field visit to a local art museum. She also read excerpts from transcription of video records back to the students. Through the different records organized and selected by the teacher, the students developed inquiries about the project.

The dialogue between Lynn and the students focused on reading behaviors that the students exhibited in the video clips rather than discussing better ways to read books. The teacher led the conversation, and she repeated comments each time in accordance with the class rules poster. Holly also showed video clips of her study-group in order to develop group discussion and determine follow-on topics of discussion. By revisiting the video records of the previous interviews with the experts' visits, the students discussed what they required to create their own art gallery.

Revisiting students' learning and teachers' teaching is in fact a process of reciprocal learning (Rinaldi, 1998, p. 120). This co-constructed learning is how teachers form a community of learners with the students and negotiate a level of shared understanding (Forman & Fyfe, 1998).

I, however, argue that revisiting discussion through video clips or photos are to further discussion on a specific topic; on the other hand, revisiting through public displays can help teachers and students reflect on the whole learning process completed and experienced by a class or group. I emphasize whole learning process should be revisited. This revisit should occur through public displays. For example, after the culminating event at Washington school, by observing documentation boards, the teachers and students can reflect together on the whole learning experiences of the project. This revisit can help teachers think about next projects.

Challenges to and Suggestions for Documentation

In spite of progress of documentation made by the teachers, they also discussed some challenges at each stage (see Table 5). Research on documentation showed that teachers faced a limited budget, lack of time, and difficulty on how to analyze (Buldu, 2010; Kroeger & Cardy, 2006; MacDonald, 2007b). The teachers in this study also reported similar challenges. The main difficulties they experienced were collaboration with other teachers and sharing with parents. They also emphasized at stage 3 the need of discussing their work with someone in order to provide feedback on their practices and facilitate creating communicative displays.

Systems and templates are a suggestion for improvement in the whole process. For example, Helm, Beneke and Steinheimer (2007) provided various templates for preparing to record such as material and supply checklists or setting up a portfolio system. They also offered forms to guide the teacher's collection process to incorporate into weekly lesson plans, analysis forms to help teacher to interpret, and presentation forms to display or share. With the templates as an example, I discuss ways to create better documentation.

At the end of this section, I address common suggestions for the whole process. Teachers should (a) develop useful templates, (b) collaborate, and (c) incorporate documentation plans into lesson plans.

Stage 1: Recording. The teachers in this study seemed to incorporate recording into teachers' teaching. The difficulty that teachers reported was a time confliction with their teaching while recording.

Time to record versus time to be with students. All the teachers except Holly reported that when they were conducting lessons or working with children who needed their help, they could not record students' work. For example, Lynn mentioned that her recording decreased for this year. She explained that because she had an increased number of students and more classroom behavior issues as compared to previous years, she had to focus on the students, which left her little time for recording.

Lack of time is a continual issue for teachers. Research shows that teachers who were introduced to documentation also reported this time dilemma between recording and performing instruction (Buldu, 2010; Kroeger & Cardy, 2006; MacDonald, 2007b). This leads to their suggestion to have aides in their classrooms such as parent volunteers or students. In this study, although the teachers had co-workers in the classrooms, the time issue was still problematic. Holly suggested a solution to this time problem. She stated that one of the benefits of video recording was that she could focus on students without the concern of manually recording their conversation. Teachers should find flexible ways to record and represent students' learning and experiences because "what is lacking is what we [teachers] do not know without flexibly using our tools of understanding and focused intentions in our observations" (Kroeger & Cardy, 2006, p. 387).

Recording targeted areas regularly. From the recording stage, teachers should deliberate about what to record. Erickson (1986) emphasized researchers' deliberate plans to spend time in specific places in order to focus on events relevant to the study. Without a deliberative plan, a researcher can have inadequate evidence at the stage of data analysis after leaving the field.

As discussed earlier, teachers seemed to have focused on areas to record. They, however, still had many areas without focus to record. Many events occur in a class, and it is difficult for teachers to record all those occurrences. Without focus, teachers will have an inadequate number of records as well as inappropriate records; thus, they will not use them. At Washington school, Mary and Holly addressed that they did not efficiently use records, particularly photos. They captured several photos in various areas (see Table 3), but they rarely used them unless the photos were about the project activity. For example, when I asked them how to use photos and video records of class events, they said that those are for newsletters to let parents know about the events. When I asked them other ways to use those photos, they were not able to explain how to use those records and said that they did not think of different ways to use them. In this regard, the teachers and I discussed creating a class book of experts' visits and have students reflect by writing stories or displaying printed-out slides on the documentation wall.

One of the main purposes of documentation for teachers was to have evidence to see students' growth in their learning (see Table 4). When they have focus to record, they can keep track of recording the same/similar areas of the same students or group of students. In another example, Lynn video-recorded students reading in the fall, winter, and spring seasons. Each season, she set two weeks to record all the students' readings. She appropriated 15 minutes to record a couple of students reading per day during reading time. At Washington school, students'

drawings such as self-portraits or observational drawings were collected periodically (time-1, time-2, or time-3 drawings). As Mary showed her analysis of O's ball-ramp drawings that O made three times over the semester, the periodically recorded drawing enabled Mary to see her growth in understanding the project.

Mary said that the students often chose creating pattern blocks during choice time, and she found many photos of students' making pattern blocks. She, however, thought the teachers had not used the record efficiently. Specifically, she thought that photos of pattern block creation are good evidence to show students' growth in math for portfolios, and she asked me for ideas of how to use the photos efficiently. I suggested that she set a certain period to take photos of children creating time-1, time-2, time-3 or time-4 pattern blocks. As a result, she can keep track of the area and see students' growth in math.

As technologies develop, recording becomes easy. Digital recorders such as cameras or video-recorders are easy to use. This, however, ease of use for recording tools leads to an unmanageable amount of records. This inhibits teachers from proceeding to the next stages of documentation such as organizing data, keeping track of results, or reviewing/analyzing.

Templates for recording. At Washington school, the teachers emphasized the recording of student statements. The purpose was to use the records to develop the project. In this way, the students' words were played back to the students to revisit what they discussed. The teachers recorded students' discussion during large group time and study-group time (small group). The teachers said that the typical way to record during large-group discussions was for teachers to write down on an adhesive note as each student spoke. Specifically, they kept the notes on a chart paper. The movable notes help students and teachers categorize and create webs. I,

however, observed that Lauren mostly typed group discussion directly into her laptop while another teacher led a large-group discussion.

Particularly at Washington school, sharing records of students' discussions among teachers was important. When a teacher looks at records made by other teachers, the records should be readable, clear, and understandable for the reader. Holly mentioned that to catch up with what they did during the morning group time, she reviewed the web-typed or hand-written verbal records. She, however, said she was not able to understand fully where the ideas originated. When I reviewed the hand-written or typed records of group discussion, only children's words were recorded.

In the project, teachers' questions and comments to students' responses are also important²⁷ as a context of the group discussion. Helm, Beneke, and Steinheimer (2007) provided templates of recording students' verbal language to include date, class, context, and speakers. To make the written/typed records of students' words communicative among the team teachers, I suggest that templates include categories of background information such as topic and the initial discussion questions. I also suggest separate columns for teachers and children would remind teachers to record their own words as a part of discussion.

Templates would help teachers focus on what to record and the context where the conversation occurred. Teachers can simply complete the background information before the group time. When they record on chart paper for large groups, they can indicate the same items. When they complete this template in electronic form, teachers can print the form and hand write as required or type the form in a computer and print following completion. Teachers can file these templates in a binder as a group record, which can help in the organization of those records

²⁷ For further discussion about the importance of teachers' facilitation, see pp. 243-246.

and sharing with other team-teachers. This record will also remind teachers of the process of the discussion when they create public displays later.

Stage 2: Organizing. Although the teachers already had organization systems to download and categorize digital records, it was clear that the time and system to organize records (stage 2) were still challenging for teachers. I found that this stage did not occur regularly in the study.

For example, after I observed the teachers capture photos or videos, I asked them if they had reviewed the data. They often said that they had not yet downloaded the digital data to their computers. In fact, this was true even for Holly and Lynn who preferred using video clips. Holly stated that teachers would often work at home to review and transcribe video clips. Lynn often stated that downloading or organizing the digital images was her “weekend project” at home. Even at Washington school, Mary and Lauren often said that they had not downloaded or reviewed the video records. Although Mary and Lynn shared the responsibility, Holly took charge of organizing digital records almost every day. As Holly mentioned, when she was sometimes absent, the Webgal-book organization did not happen.

Students’ artifacts were another type of main records for teachers to organize. However, teachers at Washington school did not systematically organize students’ artifacts. For example, teachers rarely filed students’ work samples such as worksheets or students’ artworks to their individual folders. Instead, the teachers kept students’ work samples in their own containers or folders. In what Mary described as “a last-minute scramble,” she filed the work samples to individual folders just prior to parent-conference week. This practice resulted in some students’ folders containing only a few work samples.

Systems to organize. Filing students' work samples to portfolios should occur periodically. For organization of artifacts, dating each piece of record is important. When I looked at Tricia's students' portfolios and journals, dates were not included in students' work samples. Although Lynn organized video-clips of students' reading by quarter, she had not organized by date photos and video-records of other areas. When I reviewed portfolios at Washington school, the dates for students' work samples and journals were recorded. The photos and video records downloaded in the teacher's computer were organized by date. In this way, the dated work samples were helpful for teachers to organize them later while enabling timely progress.

Teachers can schedule organization time in their working schedule and can include such time in their lesson plan. Continual organization is ideal, but as the teachers reported, it is difficult to find time to do this work in their regular working schedule. I suggest that teachers can set one or two days during a week to do organization work. The use of a checklist organized by students or kind of records can help teachers track various records.

If teachers find that a student possesses few records in a certain area, teachers can return to recording student's work in the specific area (going back: stage 2 to stage 1). Teachers can encourage participation in those intended areas that the students make records, or teachers can record.

Transcribing video records. One of the controversial recording tools was video-recorders. All teachers valued its efficiency to record, but they also discussed its constraints: time to manage the record, review, and transcribe for later use.

Particularly at Washington school, teachers focused on recording children's exact words. Students' inquiry is an important record to develop a project. Most issues in recording involved

obtaining the children's *exact* words at such time the discussion occurred. Teachers were concerned that the children's words were rephrased words by teachers when written or typed by teachers. Holly asserted that video-recording and transcribing students' discussions would help attain children's exact words. Mary and Lauren said such a process would require too much time for them to organize and review; they, however, wanted to discover other ways to record the exact words of children.

The teachers recognized the value of video recording. However, they reported that most of their challenges were in terms of length of time to organize. Transcribing and reviewing video-records (or audio records) is time-consuming work. Graue and Walsh (1998) discussed the issues of organizing video records when they emphasized that transcribers should decide "the level of accuracy desired" because transcription cannot hold exact human speech.

No transcription, even assuming wonderful clarity on the tape and no covering noises, is exact. Even if one gets the exact words, missing are the tone, the pace, the emphasis, the nuances, and so on. . . . A good set of conventions can make the transcription richer, but human speech is very complex, and getting it on paper can never be exact. . . . The level of accuracy required will depend on one's purpose. (Graue & Walsh, 1998)

Teachers can develop an efficient template to document the content they want to transcribe. Holly's transcription of video-records included teachers' questions and comments, her impression of students' behaviors, and students' verbal words. Although her focus when analyzing the video clips was to record students' words, her transcription showed many aspects of the study-group discussion. I suggest adding a time segment in the transcription process. This indication will allow teachers to find easily the clips that they want to edit for creating CDs or slideshows.

The teachers at Washington school can discuss the content and quantity of content required to efficiently transcribe the video records. This template can help teachers save time by

transcribing only what they require instead of feeling pressured to transcribe all information in a video clip.

Still a process, not a product. The teachers referred to organized records as documentation. For example, the teachers at Washington school referred to the Webgal book as documentation. The Webgal book is a collection of photos that the teachers organized by date. Lynn also called the collection of categorized photos and video clips as documentation.

I argue that teachers should note that the organized collection is still part of process, not final product. Graue and Walsh (1998) continue to discuss the difference between data record and analysis.

One records interactions and processes and then interprets the records. At the same time, the interpretive process begins from the moment one steps into the field, through all the many hours in the field, and through the many more hours working on the data record and writing. Insights can happen. Good insights should not be ignored. Our intention in distinguishing recording from interpreting is to emphasize the importance of the data record. The purpose of research with children should be to get at and underneath the day-to-day realities of those kids. . . . getting to the invisible is done through the data record. One will first see the invisible in one's data record and then in the field. (p. 145)

Teachers used this book to choose photos in order to create public displays. This does not reflect teachers' analysis. This is still pre-coding but an important step to help teachers analyze later (Graue & Walsh, 1998).

Stage 3: Analyzing. At this stage, the teachers felt that they needed other teachers or someone to think together about their students and practices.

At Washington school, the teachers were concerned with the disconnection between teachers because of their work schedules. They said that they used the Web gal, which is a collection of photos, to review each other's work or the experiences of students for when they were not present. I rarely observed that the teachers shared records or documentation with each

other or discussed their teaching and students. Even during teachers' meetings, they rarely shared or discussed the records of their students' work. When I asked Mary about sharing teachers' thoughts through records or public displays to discuss students' growth or their teaching, she thought the question was interesting because she never thought of distributing documentation to other teachers for communicative purposes.

At Lincoln school, Tricia and Lynn also mentioned that sharing records such as students' work samples and video clips of their reading or behaviors would be a good idea to discuss students' growth or their teaching at teachers' meetings (e.g., RTI²⁸ meetings or the teacher's collaboration meeting). Tricia joined a teacher collaboration group that consisted of teachers from other schools. She said that participant teachers shared, reflected, and discussed each other's lessons together by reviewing students' work samples, photos, or other data. She said that the collaborative inquiry time helped her think about her teaching and learn teaching strategies from colleagues.

The teachers at both schools also discussed the need of someone who can share and facilitate their thoughts through documentation. Lynn and Tricia felt that feedback on their teaching through video records would be helpful for developing their teaching. Moreover, the teachers at Washington school also discussed the need of an individual who could facilitate thinking about their practices and their students' work together while helping them create public displays to communicate more efficiently with children and others. A later section will discuss both issues of teachers' collaboration and the need for facilitators.

Protocols for discussion. Discussion should be systematic. Protocols are structures for teachers to converse about students' work to guide collaborative discussion. This helps teachers

²⁸ Response To Intervention

focus discussions, present and reflect, facilitate making comments on each other's work, and arrive at a degree of agreement. Blythe, Allen, and Powell (2008) introduced various protocols to facilitate teachers' examination of students' work together. Each protocol has different purposes and procedures.

For example, *the tuning protocol* is for teachers to evaluate and receive feedback on student performances and assessments by examining student work samples. The presenting teachers describe the context at the beginning of the session to include the assignment, scoring criteria, and various other metrics. The other teachers give feedback by reviewing the presented students' work and by listening to the presenting teacher's explanation. Several students typically present samples of work, often at different levels of accomplishment. *The collaborative assessment* conference is a tool for participants to "look at, describe, and ask questions about pieces of student work to develop a deeper understanding of the student who created it, of that student's interests and strengths, and of the teaching/learning environment" (p. 15). This protocol process asks participant teachers to describe the student work, to ask questions, and to speculate about the problems or issues in the work that the student focused on.

The protocols provide a safe and supportive environment for teachers to share publicly their students' work and their teaching and to receive feedback from colleagues. These conversation structures "help avoid quick judgments about student work. . . . The protocols help a group stay focused on the essentials of teaching and learning for at least 45 minutes at a time" (Blythe, Allen, & Powell, 2008, p. 6-7).

Templates for analysis. The teachers discussed their analysis on students' progress, their own teaching, and the project process (Washington school). The teachers seemed able to analyze their records. Mary, however, said that she would need rubrics to assist in reviewing the records.

Holly also suggested discussing the disconnection of what to include in portfolios. When creating portfolios, the teachers divided the portfolio areas so that they worked alone on the parts for which they were in charge. The teachers did not have time to discuss what to include in such portfolios and their students' growth. When I reviewed the completed portfolio selection forms, some descriptions were in one sentence. On the other hand, some forms included detailed description. By providing analysis forms, teachers can consider the basic common aspects about students' growth in a specific area.

Analysis forms provide basic elements of the requirements needed for analysis. For team-teaching environments such as the Washington school, the analysis forms would help teachers consider the same basic aspects about students' growth or their practices. The teachers can add and decide on the questions and focused context.

Helm, Beneke, and Steinheimer (2007) suggested examples of forms to help teachers analyze data that they collect. The forms include questions that teachers can focus on thinking and asking themselves while analyzing and space that teachers can write their analysis. For example, the photo analysis form provides several questions to provoke teachers to consider teaching style, student's interactions, and classroom environments. What knowledge or skills are demonstrated by the main subjects of the photograph? Are there any children in the background of the photograph? If so, what learning is demonstrated by their actions? What does the photograph tell me about my classroom environment?

Blythe, Allen, and Powell (2008) suggested example questions to guide examination of students' work and the quality of student work (e.g., Is the work good enough, that is, does it meet our expectations for high-quality work?), teaching practice (e.g., What do the students' responses indicate about the effectiveness of prompt or assignment?), students' understanding

(e.g., What initial understandings do we see beginning to emerge in this work?), students' growth (e.g., How does this range of work from a single student demonstrate growth over time?), and students' intent (e.g., What issues or questions is this student focused on?).

Stage 4: Creating public displays. The Washington school was equipped with various tools and materials to record and to create displays: cameras, flip-cameras, video recorders, audio-recorders, computers, a color-printer, and boards. The teachers at the school did not report a lack of materials.

Budget issues and a lack of materials were concerns reported by teachers at the Lincoln school. The teachers in other research reported a lack of budget to purchase such equipment (Buldu, 2010; MacDonald, 2007b). Buying recording tools, however, was still not an issue for Lynn and Tricia. Each teacher had cameras, and they used their personal cameras when required. Lynn drafted proposals for funding to purchase a printer and video camera. The school had video cameras for teachers in the building to share. Tricia used the school video recorder whenever she needed it.

The teachers, instead, reported a limited budget to purchase equipment for creating the displays. Tricia said that she did not use photos because she did not have a printer. She, however, said that she would use photos more often to make displays if I provided a printer. Although Lynn had a color-printer in the class, she still limited printing out photos or documentation boards to save ink. Purchasing colored ink cartridges is costly. She also addressed the cost of buying CDs and flash drives in order to copy photos and video recordings to share with parents.

Lynn suggested that unless the school provides equipment, it would be helpful for teachers, especially public school teachers, to be aware of potential funding resources. She also

suggested providing teachers with this pertinent information to facilitate their use of documentation.

Formats of public displays. As the teachers at Washington school mentioned, having templates of documentation boards, newsletters, portfolio selection, or transition forms in the school helped them create documentation boards and portfolios. As Figure 2 shows, each record transitions through series of transforming steps from recording to displaying and sharing. Teachers should plan for how each record is created in certain forms to share and display. Mary and Lauren said that creating documentation boards is easy because they use a PowerPoint format template. Newsletters, portfolio selection forms, and transition forms for portfolios were in a Microsoft word file. Teachers completed the forms on a computer or printed them for use when required.

The teachers, however, raised questions on how to modify the current system in order to increase its efficiency and better represent and share documentation. Mary and Holly said that the designs of all the documentation boards hung in the hallways seemed to appear similar, and they wanted to consider a different format. Holly particularly said that she would want to use her expertise in design to create different formats. The documentation boards of the semester, however, used the template so that I was not able to see their ideas of different formats.

Helm, Beneke, and Steinheimer (2007) showed several examples of display layouts such as diagrams, monotonous squares, panel boards, and narrative paragraphs to explain the significance of what is displayed, three-dimensional displays showing how to bring photos forward, and mural displays. I also suggest that documentation boards can take a form of a flow chart or story line to show the whole progress of a project.

In another example, all the teachers at Washington school mentioned changing the portfolio format. In order to make portfolios more communicative with parents about children's growth, the teachers had different focuses to include (a) providing collective artifacts timely chosen to show the progress (e.g., pre-assessment and post-assessment), (b) providing evidence of not just the students' work but also group work to show the context of the child's learning, and (c) including detailed narrative descriptions of the children with each photo to explain students' growth.

As technology develops, recording and tools for communications will ultimately evolve. Recent technologies, such as smartphones and tablets, can easily compose texts to make notes, record videos, capture audio, and take photos. This information can then be produced as *iDocumentation* for online portfolios and daily blogs to allow parents more access to their children's experiences in school (Parnell & Bartlett, 2012). Documentation strategies will continue to develop, particularly as technologies progress. Ultimately, teachers will have more choices to explore and use technologies for recording and creating public displays to tell classroom stories with others.

Stage 5: Sharing. Although the teachers experienced challenges in recording and creating public displays, their most frequent concerns and issues were regarding the sharing of public displays with parents.

With parents. At Lincoln school, the teachers expressed difficulties about sharing students' growth and learning through displays with parents. Lynn mentioned that because repeatedly burning CDs of digital records for all her students consumed too much of her time, she thought of using flash drives to make it easier. However, flash drives are more expensive than CDs. At the end of the semester, Lynn decided to ask the parents to provide blank CDs or

flash drives if they wanted their children's photos and video-records. During the last interview, Lynn mentioned that she received only four CDs from parents. As such, she made copies for the four sets of parents during the school year. Lynn additionally reasoned that placing flash drives on the school supply list at the beginning of the school year would help. She could also inform parents of where to purchase inexpensive flash drives. Tricia also said that because some students' parents are not fluent in English, she thought of providing images of the students in the classroom through a website.

The parents at Washington school dropped off and picked up their children each day. This routine helped teachers have frequent and informal conversations with the parents. Additionally, it provided an opportunity for the parents to look freely around the classroom. At Lincoln school, however, the students bused to school and parents' visits to their children's classrooms were less frequent. Tricia mentioned that the parents of ESL students rarely visited her classroom. As a result, any displayed documentation in the classroom would be difficult to share with parents.

Buldu (2010) found that when kindergarten teachers reported a lack of parent presence for reviewing documentation panels displayed in classrooms, it affected the documentation process as well as its value. The teachers stated they had to change the format of documentation by sending newsletters to summarize the documentation panels. The teachers at Lincoln school had the same challenge of a lack of parent presence, and as a result, Lynn and Tricia developed alternative ways to share children's classroom experiences with their parents. These alternative methods included creating websites and sending CDs of students' images or a collection of photos of the students' work.

Sharing various formats of public displays. Although parents saw the documentation boards at the culminating events and received newsletters, the conversation about children's work with the teachers and parents was limited to looking at a child's portfolio at the parent-teacher conferences. Teachers should consider other forms of public display to share with the parents and various audiences.

For example, at parent-teacher conferences, parents can discuss their child's learning through documentation boards along with portfolios. This can help them discuss a student's growth in the context of the child's learning experiences for the semester. This process can help parents understand their child's learning experiences in the classroom (Buldu, 2010). By looking at a variety of evidence of students' growth with parents and teachers, parents and teachers will construct a deeper understanding of children's development and learning.

In another example, the white book at Washington school is the entire collection of resources and materials of the whole project process. Mary explained that another helper, who is not a regular teacher in the school, completed the binding of the records. I suggest that if teachers work together to put together the records that they made, teachers can revisit the whole process of a project. They can discuss what to do for better projects or efficient communicative displays in order to prepare for the next project. The revisiting process of the project at the end can help teachers reflect on their teaching processes and the students' responses and ideas. As a result, this will assist with facilitating the next project. As a further reason for revisiting, assistant teachers were mostly graduate students at the university; in other words, they had new teachers almost every year. As a result, the public displays can be a good resource for training new teachers about the school philosophy and curriculum.

Audiences' responses. At Washington school, parents completed a reflection form. The form has questions about the project. Teachers can develop reflection questions for parents in other areas. For example, reflections on important school events would help teachers prepare for the next events. At Washington school, culminating events and parent-teacher conferences were major events to share what children experienced and learned through various public displays. In parents' reflection forms, the teachers can add questions about the public displays such as what kind of information they want to see from those displays (e.g., documentation boards). Audiences' perspectives about public displays would help teachers create better communicative formats of public displays from viewers' perspectives.

Common suggestions in the whole process. In this section, I discuss three suggestions to apply to the whole process: (a) to continue to develop templates, (b) to collaborate, and (c) to incorporate documentation plans into lesson plans.

Continue to develop useful templates. Templates make it easy to create and modify according to audiences and purposes of using, easy to archive, and helpful for teachers to learn basic principles of good design (Helm and Helm, 2006). I emphasize that templates provide basic focus or questions to guide. Templates are not complete and fixed forms. An important aspect is that teachers should modify and develop efficient and useful templates to suit their classroom situations by using the existing templates.

Unless teachers carefully consider their application, templates can be useless. For example, the teachers at Washington school admitted that they sometimes followed without thinking about a purpose. For example, when I asked Mary about how to use written responses of teachers and students for the project, she mentioned that she read the written responses but never

thought of ways to use them to include incorporating them into the next project. She mentioned that she would need to think about their effective use.

Collaborate. The teachers emphasized teachers' collaboration to think together at stage three. Holly's discussion on teachers' collaboration, however, showed the need of teachers' collaboration in the whole process at the school with co-teaching environments like Washington school or a class with other adults like Lynn's situation (with an assistant teacher and student teacher).

In recording (stage 1), Holly had an activity for students to bring a collection of things that they wanted to share with the class. This related to her study group topic—art museums. She thought that it would be good to open up the study group topic to the whole class for participation. She asked the morning teachers to set up the activity, take pictures, and video record. She, however, mentioned that she had few photos and no video recordings of this activity. The teachers set up the activity in the morning, but no one recorded them as directed. In organizing data (stage 2), she also expressed a concern in that downloading photos and video-records from cameras and filing to the Webgal book was her responsibility. If she was absent, this organization did not occur. When creating portfolios, the teachers divided the portfolio areas so that they worked alone on the parts for which they were in charge. For example, Lauren assumed writing about social/emotional areas while Holly was in charge of arts/aesthetic folders. The teachers did not have time to discuss their students' growth (stage 3). Mary mentioned that there was often a rush to complete the creation of documentation boards and portfolios before a culminating event and during parent-teacher conference week (stage 4). Mary also mentioned goals for implementing a more solid structure of documentation. Such goals included a standard

method for completing portfolios so that the teachers could better communicate students' growth and development in each learning area.

The head teacher, Mary, was only required to attend parents-teacher conferences (stage 5). Holly attended the four conferences of her study group students. When Holly attended, Mary let Holly lead the conversation about a student's progress in project, math, and literacy because Holly was the one who had interacted with those students and completed portfolios in the area. When Holly or Lauren was not present, Mary was still able to communicate with the parents by looking at the records and teachers' commentaries in the portfolios. In this regard, the conversation would be more accurate, richer, and valid if other TAs shared their thoughts with the parents.

Lynn had an assistant teacher and a student teacher. She thought of the extra teachers mostly as persons who could be with the students so she could avoid interruption by students while she worked on recording. If needed, she asked them only to help her record—video recording of her teaching and filling out the checklist. The rest of the stages were considered as her work. She did not consider the extra teachers as collaborators in the documentation process.

As emphasized, students' involvement in the whole documentation process is essential (will be discussed in later section). I also argue that teachers' collaboration should be stressed in the whole process when other teachers are available in a class.

Documentation plans into lesson plans. It appeared that teachers thought that documentation was an “add-on,” not part of teaching. This reasoning is because the common issue in each step that the teachers reported was lack of time. I argue that planning the documentation process is an essential part of lesson plans. This will help teachers consider documentation as a part of teaching.

As Holly and Mary stressed the need for solid time and a consistent structure for the entire documentation process, I argue to incorporate each step of documentation into their part of teaching. The common issue in the whole process was lack of time. In both schools, the teachers noted the lack of time particularly in organizing records (stage 3), thinking about records (stage 3), and creating public displays (stage 4). Although the Washington school incorporated documentation strategies in their curriculum and designated time for teachers to do documentation, all three teachers desired a more solid structure and time so that they could work daily on documentation at school. Some teachers spent extra time in creating public displays at home or after school.

Helm, Beneke, and Steinheimer (2007) provided a template for documentation plan incorporated into lesson plan. It has five columns: daily schedule, weekly plan for each learning area, another weekly plan for evolving learning experiences, plans for environment of what is available to the children, and daily plans for meeting or discussion times. It also has space to record teachers' reflections and goals.

At Washington school, the teachers started creating documentation boards before certain events and portfolios before parent-teacher conferences. As Mary mentioned, without solid time to do the work, the documentation process and creating visual displays can easily be last-minute work before deadlines. It is good to have a certain period or event to allow teachers ample time to make public displays. I argue to incorporate this long-term goal into monthly (or longer) lesson plans, too.

Sharing periods should be continuous and more frequent through different visual displays. Plans for documentation process will help teachers transition through each stage periodically and make documentation a steady process as well as eventually a part of teaching.

Documentation for Children

As all the teachers stated, the children enjoyed seeing themselves in pictures or video clips. The participant teachers believed that documentation was more than just a fun experience for the students (see Table 6). The teachers at Washington school discussed ways to make documentation for children. Their discussions addressed eye-levels for displayed documentation boards, ways to record students' exact words rather than teachers' words, how to use the records of their work and words to advance group discussions, and how to get students involved in the documentation process.

The teachers at Lincoln school, especially Lynn, discussed various meanings of documentation for children. Lynn's focus was on promoting students' learning and celebrating together positive behaviors and accomplishment. She also felt that sharing and reviewing records with students (e.g., behavior checklists, video clips of reading, and photos of their work) promoted their learning and positive behaviors.

Effects of documentation on students. All teachers agreed that recording students and their work gives the message that teachers value their work: important, memorable, proud, recognizable, and beyond nice (see Table 4). The teachers believed that this message would support students' discussion of their learning (e.g., process of the project) and encourage positive learning behaviors (e.g., reading behaviors or practice of reading).

Lynn noted that when she video-recorded students reading alone or with friends, the students demonstrated their best efforts. I observed that the students seemed to know they should

perform well when being recorded. When Holly said that she would video-record her math group performance of the coin song, the student said out to the group, “We should do good!” As Holly reported that children sometimes initiated ideas for recording (taking photos or video recording) or creating displays (burning CDs of photos and video clips) in order to share their work with their parents, students were also aware that visual display was an effective way to share their work, especially with their parents.

Recording students' work and their learning can show the teachers' respect for students' work (Rinaldi, 1998) and promote student engagement in learning. Teachers in other research studies also reported the effects of documentation on students. These teachers reported that the documentation process promoted students' participation, motivation, and interest in learning as well as self-awareness in terms of a sense of achievement (Buldu, 2010; MacDonald, 2007b).

Emphasis on students' involvement in the whole process. I argue, however, that students should take active roles in documentation process. The teachers reported the influences of documentation on students were the situation where students' work or their performances were recorded or represented in displays by teachers. Being recorded itself can have a positive effect on students as the teachers reported. I emphasize that students should participate in the whole process to record, think about, represent, and share their own work and learning with audiences.

All the teachers emphasized students' involvement in the documentation process. Mary differentiated children's records and teachers' records. She considered journals and work samples as the students' records. I observed teachers letting students use the cameras to record their work (stage 1). Mary had a group of children take photos of their pattern block creation. Lauren thought that having a student with autism to take photos would help him focus.

Table 5

The Process of Documentation

					5: Sharing	
	1: Recording	2: Organizing systematically	3: Analyzing	4: Creating public displays	inward	outward
Compared to research process	Collecting data	Constructing data record	Analyzing data record	Writing		Reporting
What teachers do	Taking pictures, video-recording, collecting students' work samples, audio-recording, writing/typing what students say	Downloading, transcribing, formatting, collecting, printing out, typing, digitalizing, filing, binding	Think about : students' progress project process teachers' teaching Selecting	Boards, CDs/DVDs, portfolios	With students Leading new discussion	With parents At parent-teacher conferences Sending home With visitors Displaying in hallways and classrooms
Issues	Time to be with students versus time to record At Washington school-recording students' exact words	Time to organize and time to review Systems of organizing Using organized records	Disconnection among teachers Need someone to discuss with	Regarded as teachers' individual work	Rare occurrence of revisiting through public displays; mostly through organized records	Lack of money to purchase equipment(e.g., flash drive) Various formats according to different audiences (e.g. ESL parents) Lack of parents' visit to classrooms: some forms were not communicative
Importance	A piece of data	Still a process	Collaborative inquiry	Collage of group work	Revisit	Post-conversation

(continued)

Table 5 (continued)

					5: Sharing	
	1: Recording	2: Organizing systematically	3: Analyzing	4: Creating public displays	inward	outward
Suggestion	Manageable amount of records	Have organization systems (e.g., computer software or portfolios selection)	Should do collaboratively	Should do collaboratively	Use diverse public displays to revisit their work and learning	With parents about a child's progress and learning
	Think about focused areas and record periodically	Transcribe what students say from video-records	: with students	: with teachers	Have templates of reflection forms	With teachers about lessons, curriculum, or the next project
	Have templates for recording what students say	Have templates of checklists to keep track of records	Have protocols for teachers' collaborative inquiry	Think about the elements of collage of group work (emphasis on teachers' facilitation)		Have templates of reflection form
			Have templates of analysis forms (e.g., photo analysis, students' work)	Portfolios including group work		
				Have templates of layout of public displays		
			Flexible use of templates: develop useful templates			
			Template for a lesson plan: Incorporate documentation time into a lesson plan			
			Teachers' collaboration (e.g., Lesson Study)			
			Have students involved			
Going back	(I←←←←←←←←←←←←←←←←←←III) to collect more records according to teachers' purposes					
	(I←←←←←←←←II) to collect more records based on checklist					
	(II←←←←←←←←←←←←←III) to revisit with students: to further discussion					

Depending on students' ages, older children could help teachers record once they received instruction. In this way, they can be additional assets to help teachers record in classrooms (MacDonald, 2007b).

At the same time, I rarely observed teachers intentionally plan to have students record their learning and work. With the exception of Lynn, I observed that the teachers had students to take photos of their work in order to solve behavior problems (e.g., solving conflicts when the boys had a problem with taking turns with pattern blocks). The teachers rarely used the photos taken by the students in creating documentation or for the planning of follow-on lessons. For example, Lynn had the students to take photos of nature and sort the photos into categories (stage 2) as part of a math lesson.

The teachers, especially at Washington school, emphasized that the need of student involvement was not just in recording (stage 1) but also in the rest of process. They felt that this was an area in which they could improve. Holly mentioned that the students should know how their work would be used because this awareness could add value and purpose to their own learning. For example, Holly's math group showed that students can be involved in documentation process (stage 2 and 3). Holly took her math study-group to one of the display boards in the hallway. She discussed with the children how to show what they learned in the math group on the board in order to show their parents and visitors. The students chose pattern artwork to display and discussed the reasons for their selection. While choosing artifacts to display, the students also discussed the meanings of patterns. The final board showed students' selected pattern artwork and written words of their understanding of the patterns. As Holly stated, the pattern artwork that the students chose represented their concrete understanding of patterns. Additionally, she was able to see students' learning through their involvement in stage 2

and 3. Particularly at stage 3, the students showed that even young children can think collaboratively about how to share and what to share among the records. Students can participate more actively in doing documentation.

Having students involved in the whole process of documentation is authentic learning experience. The students not only learned about patterns; by discussing which art work represented patterns or not and choosing the best representative ones to display on the board, they were able to think about purpose of learning and values of learning as Holly mentioned. Documentation process can be actual lessons for students—recording, talking about the records, creating public displays with the records, and possibly sharing.

Wang, Kedem, and Hertzog (2004) showed that young children's involvement in analyzing (stage 3) and creating public displays (stage 4). Students selected records such as their own drawings, pictures, and representation from the project work. With the help of the teachers or by themselves, students produced PowerPoint presentation slide of the project process. The process of creating the format of this visual display helped the students reflect their own learning and articulate their thinking. This reflection also provided teachers to think about further teaching. If older students are provided with a simple template of PowerPoint slide as shown in the study of Wang, Kedem, and Hertzog (2004), children can create public displays (stage 4) such as documentation boards or class books as teachers do.

Possibly, students can be involved in stage 5. The common ways for students to share their work were talking about work through records (e.g., recorded words or photos) with the whole group. At Washington school, during project group time, the students shared their work or discussion about their study group's progress with the whole class. This was more likely thinking together (at stage 3) to further their discussion of each study group. At culminating events, the

students could take an active role to explain the process of the project their parents through documentation boards or other public displays. For older children, they can think about what to say and practice how to share their thoughts.

The whole process of documentation should be applied to students' engagement in not only recording but also in eventual documentation of their own learning and experiences. Their involvement in the documentation process should be more than recording because "through the process of representation, children make their ideas explicit and the focus of communication" (Nimmo, 1998, p. 303). Involvement in documentation process to represent their learning can provide students with opportunities for reflective thinking on their learning (Boardman, 2007) because "acquired knowledge is most useful to a learner; moreover, when it is 'discovered' through the learner's own cognitive efforts, for it is then related to and used in reference to what one has known before" (Bruner, 1996, p. xii).

Deeper Understanding of Documentation

All the teachers felt that their strategies and thoughts on documentation had changed and would continue to develop. At Washington school, from the first interview, they talked about documentation for children (e.g., displaying documentation boards at students' eye-levels and ways to record and show students' reflection on their learning). They also raised questions on how to modify the current systems in order to increase efficiency and better represent and share public displays. For example, they discussed ways to make portfolios more communicative with the parents. They seemed to focus on improving their skills to record with a variety of recording tools or create more public displays.

The teachers at Lincoln school also talked about creating more various public displays to communicate with other audiences, not just parents and children. For example, Tricia's common

way to share students' work was displaying all of their work on the wall. After she saw my documentation board that I created for her class, she mentioned that she would create documentation boards to share her students' learning including teachers' explanation, children's words, photos of students' working and students' writing samples. Lynn also felt that her documentation strategies had developed since she learned from the professor. She would continue on thinking about various ways particularly to share with parents.

The emphasis of this study on documentation, however, is for teachers to develop not just recording or techniques to create public displays but also teachers' thoughts and intentions on documentation. The Washington school teachers mentioned that since they worked in the school where documentation is emphasized, their actual skills in creating public displays as well as the meaning of documentation had changed. In this regard, they felt that documentation had shifted to represent students' work rather than teachers' work, to emphasize process rather than product, and to share public displays rather than displaying all the same children's work. Lynn mentioned that since she was introduced to documentation process (e.g., creating documentation boards) by a faculty facilitator, she understood that documentation was for representing and accentuating students' positive aspects and for sharing it with others. As teachers developed techniques, they should evolve to consider various uses, more diverse purposes, and the creation and sharing of meaningful stories of students' learning and experiences (Kroeger & Cardy, 2006; Seitz, 2008).

Although some teachers were aware of changes in their understanding of meaning of documentation from teachers work to children's work, I discuss three important aspects for meanings of documentation as: teachers' collaborative inquiry, collage of group work, and invisible teaching.

Teachers' collaborative inquiry. All teachers at both sites felt that they needed more collaboration with other teachers. The teachers at Washington school particularly recognized the importance and benefits of sharing records and public displays with the students but not among the teachers. Although the teachers' collaboration was emphasized in the school and supported through team teaching, they addressed a disconnect between each other.

At Washington school, as the culminating events and parent-teacher conferences approached, the teachers discussed what to include in the documentation boards and what kind of formats they would use. This discussion was about the formats of documentation boards and other final documentation that they would display or give to the families; however, it was not about knowledge construction for deeper understanding of their students or their teaching. As a result, documentation was lacking as a communicative tool among the teachers.

As discussed earlier, Holly's discussion on teachers' collaboration showed that the whole process of documentation at Washington school emphasized teachers' collaboration. The teachers at Lincoln school also placed value on sharing students' work or records of students' work with other teachers outside of the school. Tricia actually joined teachers' collaborative groups outside of the school.

They reported that conversation among the teachers using records or public displays rarely occurred. In fact, Tricia was the only specials teacher who talked about her students with their classroom teachers. Lauren she said that she informally shared this information and did so without actual records or documentation. Lynn had an assistant teacher, but I did not observe Lynn talking with the assistant teacher while reviewing, records such as behavior checklists, students' work samples, or her slideshows of students' readings.

The continuous revisits in the process of documentation can promote teachers' inquiry. For example, Moran (2007) found that through the inquiry cycle teachers show (a) an increased awareness of the value and need to share responsibility with teammates for making curriculum decisions, (b) early attempts to self-regulate teaching behaviors through reflection-in-action, and (c) a growing appreciation for the role of documentation.

Especially in early childhood education, because of the pervasive notion of DAP and pressures on academics, teaching is seen as individual work to teach or plan lessons with theories or curriculums given to them rather than constructing knowledge and teaching their students through collaboration with other teachers. Lewis (2002) discussed differences of teachers' activities to improve instruction between in the United States and Japan. She asserted that teachers in the United States spent most of time on thinking about what to be taught at each grade level and finding curriculum based on local or state standards. American teachers plan lessons individually rather than collaboratively. They rarely watch and discuss each other's lessons.

Without collaborative communication, documentation is "a hard to reach place" because "educational environments as places of practice do not share philosophical orientations to learning and teaching, thus applying principles of documentation within them is often met with only partial success, depending upon the level of teacher understanding" (Kroeger & Cardy, 2006, p. 390). Collaborative inquiry is looking at the evidence collected and represented, providing opportunities to foster adult learning, and engaging in educational research (Bray, 2002; Eisenman, Chamberlin, & McGahee-Kovac, 2005; Goodnough, 2005; Weinbaum et al., 2004).

Lesson Study (Lewis, 2002) is an exemplary ways of teachers' collaboration to improve their instruction. It is not a lesson of an individual teacher who teaches. Teachers work together for the whole process of Lesson Study. Teachers voluntarily form research lesson team. They make agreement on a main theme (research theme) and long-term goals for students, a subject area, a unit and lesson, and goals. They study existing lessons in their classrooms and develop a plan together. While a teacher teaches the collaboratively planned lessons, other member teachers observe the lesson and collect data. They discuss and analyze together the research lesson according to structured agenda.

The book in *Lesson Study* includes templates of lesson plan. The template for research lesson includes elements for member teachers to understand a specific lesson, to focus and record during observation (e.g., teacher activity, anticipated student thinking and activities, aims of the lesson, learning process for the lesson, evaluation of this lesson—major points to be evaluated, and copies of lesson materials). The lesson plans and records that the observing teachers fill out are brought to next meeting. The team-teachers discuss the research lesson through the collected records and consider ways to revise and improve the lesson and instruction. The teacher re-teaches the lesson and studies it again.

Fleet and Patterson (2009) explained the effect of teachers' collaboration, the element of ownership as a key principle for professional growth. . . . The element of ownership does not presume isolation. On the contrary, it [ownership] foreshadows a collective of empowered individuals with a belief in the social construction of knowledge. The 'group' not only contributes to its own learning through synergies of circumstance and collective energy, but has the potential of evolving into a critical mass of people who can create a local culture and effect sustainable inquiry. (pp. 20-21)

This collaboration can produce mutual knowledge and understanding because “meaning is negotiated mutually in the act of interpretation; it is not simply discovered” (Schwandt, 2000,

p. 195). Practically, when teachers study their students and practices through what they recorded with other teachers, their understanding of their teaching will become more reliable and valid.

A collage of group work. Arguing that documentation represents the synthesized understanding of various group learning, I am borrowing the concept of “montage” from Denzin and Lincoln (2005). They described “montage” as

several different images are juxtaposed to or superimposed on one another to create a picture. . . create the sense that images, sounds, and understanding are blending together, overlapping, forming a composite, a new creation. . . . It invites viewers to construct interpretations that build on one another as a scene unfolds. These interpretations are based on associations among the contrasting images that blend into one another. . . . The quilter stitches, edits, and puts slices of reality together. This process creates and brings . . . a pattern—to an interpretive experience. . . . In texts based on the metaphors of montage . . . many different things are going on at the same time—different voices, different perspectives, points of views, angles of vision. (pp. 4-5)

Important aspects of montage include the blending of different images to create a single image, the invitation to viewers to interpret and make meaning of the creation, and the constructed interpretation of the viewers to create a new image using varied points of view.

I argue that public displays in documentation process are a *collage*, “an art form in which diverse materials such as bits of newspapers, magazines, drawings, etc., are arranged and mounted to form a pleasing arrangement” (New Webster’s dictionary, 1981, p. 197). While montage is made of a single element, usually pictures, the meaning of collage emphasizes various materials to create an image. While research takes usually written narratives with texts, public displays through documentation process consist of different materials: photos, written texts, scanned students’ writing and drawings, videos, 3-D representation, and so on (see Figure 2).

The collage of public displays represents *group work*. As discussed earlier²⁹, group work in documentation process is convergence of collaborative learning (Roschelle, 1992) which is the synthesis of individual learning, small-group learning, whole-group learning, and learning with adult facilitation. Various group work represented in public displays, I describe, *a collage of group work*.

This collage (a) represents students' contribution to group learning, (b) emphasizes teachers' facilitation, and (c) helps understanding students' growth in context.

Individual's contribution to group learning. A collage of group work shows individual contribution to group learning. Bruner (1996) asserted that the benefit of externalization is to make possible "job-related division of labor one finds in effective work groups" (p. 21). For example, the project represented by documentation boards and by other representation displayed at the culminating event showed how the project evolved through students' discussion, teachers' guidance, and other adults' supports. Students' individual drawings contributed to the project's evolution by representing the project ideas. Individual words built up class discussion. Moreover, the ball-ramp created by the study group demonstrated group ideas and learning. The documentation board of the three study groups represented the entire class learning about museums. The individual contribution to the group work was emphasized at the parent-teacher conferences. When Mary and Holly discussed the project work of O and L, they referred to each one's contribution to the study group discussion and noted how the ideas of each added to the development of the small-group discussion.

By observing individuals' work in group settings, children can be "viewed as 'resources' to each other's learning. By combining most representative drawings, writing, photos, or

²⁹ See the dictionary meaning of *public* on p. 196

children's words in documentation [boards], an awareness of each other's profile of strengths, weaknesses, interests, and dislikes is important public knowledge for the community" (Nimmo, 1998, p. 302).

Teachers' facilitation as a part of group learning. In western culture, individualism in learning is a central focus of education (Bruner, 1996; Lee & Walsh, 2005). In early childhood education, because of the emphasis on academics as well as the pervasive influence of developmental theories and DAP (Developmentally Appropriate Practice), individual learning has been emphasized. Possibly because of the emphasis on individualized learning, the notion of documentation has been reduced to portfolios to represent individual students' growth. This individualized education led "American teachers [to] focus primarily on the interactions and relationships between adults and children rather than on the interactions and relationships between children" (Lee & Walsh, 2005, p. 75).

Ironically, the teachers in this study focused their documentation on representing relationships between children rather than the relationships between teachers and students. The teachers strongly believed that the purpose of documentation is to show students' learning, work, and growth. At Lincoln school, the teachers did not want to be personally recorded and represented in the documentation. Lynn emphasized that documentation is about the students, and she thought that parents would want to see their children's work, not the teacher's work. Tricia also agreed that documentation is for children and for sharing with their parents. The photos and video recordings (or audio recordings for Tricia) included children working together, but the recordings rarely captured the teachers' teaching (images of teachers or teachers' spoken words). The portfolios consisted of an organized collection of students' writing samples and did not include teachers' commentaries.

In contrast, the teachers at Washington school were rather open-minded about being recorded and the importance of teachers' commentaries. In the Webgal book and some video clips, I often saw images of the teachers. As a lab school, visitors and observers of the school were common. The teachers seemed less reluctant to show their teaching and themselves to others. For the documentation boards, the teachers structured each side with their explanation of the project process as represented by the photos, children's drawings, and children's words. Additionally, the help of adult experts in answering the children's questions and solving the problems raised by the children were also represented. In the portfolios at Washington school, teachers' commentaries were included along with students' work samples and photos. Portfolio selection included teachers' brief descriptions of the selected photos or images of students' work. The teachers completed transition forms to indicate overall student growth in each learning area.

Still, I found that the teachers' facilitation was rarely recorded or represented. Particularly teachers' roles in facilitating inquiries in the project were considered as an important aspect to develop the project. Teachers' questions, however, were rarely shown in written records as well as on documentation boards. When the teachers recorded or typed the project-group discussion, teachers' words (e.g., questions, feedback on students' ideas) were not recorded. Thus, teachers' questions in the documentation boards were largely absent with the exception of Lauren's study-group boards. As a result, the final documentation boards included mostly students' words and actions (e.g., in pictures).

As discussed previously, Holly argued that the morning teachers' records of the large group discussion only with students' words was not helpful for her to follow up on the flow of the group discussion. I argue that teachers' questions and comments to students' words are part of context of children's discussion. Without teachers' questions and comments, children's

discussion misses the context in which students' ideas flow. Erickson (1986) explained the role of interpretive commentary in a report in that "it [interpretive commentary] precedes and follows an instance of particular description is necessary to guide the reader to see the analytic type of which the stance is a concrete token. . . . Interpretive commentary thus points the reader to those details that are salient for the author, and to the meaning-interpretations of the author.

Interpretive commentary also fills in the information beyond the story in a way similar

As is important interpretive commentaries in research report to guide readers to the point that authors want to show, teachers' commentaries should be represented in public displays.

Forman and Fyfe (1998) emphasized teachers' commentaries.

When applied to negotiated learning, displays should be converted to documentation by adding interpretation and explanation to the graphics. . . . The panels need commentary to qualify as documentation. . . . The teacher's commentary is necessary to frame the data as examples of something more general, some principle that can be applied in new contexts. . . . Documentation is a research report used to enhance discourse rather than a record of a past event. (pp. 245-246)

Fleer and Richardson (2003) found that when they analyzed records of children's behaviors by early childhood teachers, they found that the teachers recorded the young students without mentioning how adults interacted with the children. Fleer (2003) explained, "The traditional early childhood practice of observing children [in western cultures] had privileged an individual orientation and did not include what adults were doing or saying" (p. 68).

Emphasizing teachers' commentaries does not mean emphasizing "teacher-directed" learning. As Bruner (1996) and Feinburg and Mindess (1994) mentioned, the teacher's role in group learning is to serve as "orchestrators of learning" in order to assemble the students to execute group learning. Teachers should "help the child to focus, to raise challenging issues that incite critical thinking, and to deliver information directly in order to extend the child's frame of

references” (Feinburg & Mindess, 1994, p. 96). This role of orchestrating group learning does not “reduce the teacher’s role nor his or her ‘authority.’ Rather, the teacher takes on the additional function of encouraging others to share it” (pp. 21-22).

I argue that the orchestrating role of teachers can show the context of how the students constructed mutual understanding and knowledge of the group learning. Representing the orchestration of group discussions or project work such as teachers’ questions, feedback, or suggestions can show part of processing students’ work and learning. Pedagogical documentation should include mutual understanding created by all kinds of group learning that the students made with various groups of people: individuals, small groups, full groups of their classmates, adults (e.g., teachers, experts, visitors, or their parents), and the community.

Group learning for students’ growth in context. The teachers’ main purpose of documentation in this study was to share students’ learning with parents. In this regard, documentation related to students’ individual growth was an important aspect. At the beginning of this study, one of my main arguments was the differentiation of documentation from portfolios in that portfolios represent individual student growth while documentation represents group learning. I emphasize that portfolios as public displays should include group work.

As discussed earlier, Holly’s portfolios for her study and math groups showed the ways to combine individual student’s work with group work (e.g. written group discussion or a photo of documentation boards, the objectives slides of the measurement lesson (teachers’ commentaries). The teacher’s work, to include lesson goals and written records of the group discussion, can provide the context of the child’s learning. Holly said that by providing evidence of group learning, the artifacts or photos were able to demonstrate what the students experienced or learned and how the students developed rather than what the students did in the class. As a

result, portfolios are part of documentation (Daghlberg, Moss, & Pence, 2007; Forman & Fyfe, 1998; Rinaldi, 1998).

At Lincoln school, by displaying a slideshow of video clips and photos of students learning at the parent-teacher conferences, Lynn was able to show the contexts of classroom learning. The parents asked their children questions, and the teacher was able to explain the class work and experiences rather than just the child's growth. At the same time, the teacher could possibly suggest that the parents use a similar strategy that the video records of a child's reading books when the parents help their child reading at home (e.g., pointing at a word while reading, looking at pictures if you do not know how to read a word). This study did not directly ask parents' opinions on documentation, but some studies showed similar responses by parents to documentation. Buldu (2010) found that parents reported that documentation boards [representing group work] increased parents' understanding of their children's school experiences. It also provided effective practices and ways to support children at home.

Invisible teaching. Walsh (in preparation) asserted that teaching consists of two parts: the visible and the invisible. The visible part is what outsiders can see when they enter a classroom, for example, teaching a lesson and giving direction. Teaching is often described as “mainly instruction, partly performing” (Ayers, 2010, p. 16). The “visible part [is] like standing in front of [the] class, doing most of the talking while students are sitting at their desks most of time, seeming to do nothing at all” (Ayers, 2010, p. 63).

The invisible parts of teaching such as planning lessons, assessing, preparing materials, reviewing work samples, or teachers' meetings are not as easily recognized by others. It is very important to note that “good teaching requires a strong invisible base” (Walsh, in preparation, p. 4). When the teachers created public displays from all the collected records, they discussed

lesson planning, questions to ask the students, instructional support for specific children's learning.

The teachers spent a great deal of time in creating public displays. Lynn and Tricia attended a training workshop to learn more about making records, organizing records, and creating displays, and sharing and distributing the public displays. Documentation can make the invisible part of teaching visible and enrich teaching itself.

Documentation as steady process. While it seems that the teachers were able to incorporate making records (stage 1) of students' learning or experiences into their teaching, it is clear that the time required to organize the record (stage 2) and then to work on them (stage 3) took much time. Although Holly and Lynn stated that they did not mind spending extra time, it was clear that teachers would need to plan for stage 2 and 3. Teachers should consider and plan for the required time and structure in order to fit the documentation process into their routine of teaching.

Creating documentation boards for a project was mandated for all the teachers at Washington school. Without a solid time and structure, this time requirement, as Mary admitted, made the creation of documentation a "last-minute-scramble" before a culminating event and parent-teacher conferences. If documentation is viewed as extra work, teachers would see it as optional and not part of teaching. Finding time in their daily routine to do documentation should be emphasized as part of teaching. Documentation as steady process should be incorporated into lesson plans. As previously mentioned, the dictionary definition of documentation actually implies teaching³⁰. This study emphasizes that among the many aspects or activities of teaching, documentation is a most important facet of invisible and good teaching. The documentation

³⁰ For dictionary meaning, see pp. 182-183

process can help teachers gain a deep understanding of students and their practices while promoting a shared learning community.

Facilitating Documentation As a Part of Teaching

In other research teachers reported the need for another person in the classroom to aid in recording while they focus on children or performs the lesson. Specifically, they suggested the use of parents or other volunteers in the classrooms (MacDonald, 2007b). The teachers in this study, however, discussed a need for someone they can talk with about their students and their teachings. They desired an engaged individual, not just extra hands to record or create documentation. More broadly, they desired a person who can make the documentation process as a part of teaching.

Holly and Mary used the interview time with me to ask questions and obtain suggestions for improvement in their teaching practices and in creating documentation. Tricia also expressed a desire to discuss her teaching with another individual or other teacher. She said that the interview time with me helped her to think critically about her teaching. Lynn did not mention such a desire in interviews. She, however, thought that if she could receive feedback on her teaching, it would be more helpful to use video recording.

As shown in this study, the representations that teachers created were their own stories of their classroom experiences. Documentation is represented by their situated knowledge of their classrooms. This very situated knowledge would be facilitated by better understanding of their students and practices. Facilitating teachers' use of documentation should be made within the context where teachers actually try to capture, think, and use the information for the local audiences.

For example, the teachers had preferences for recording according to their familiarity of the given technologies and the efficiency in recording the moments they thought to be important to students' learning. As Lynn experienced, facilitators could help teachers explore various techniques, assist with the expenses for implementation, and help them learn how to use the technologies. Additionally, they could share funding information to purchase documentation equipment and provide resources or materials depending on the teachers' situations.

The most critical need for all the teachers in this study were people with whom they can share, discuss, and receive feedback for the ideas and occurrences in their classrooms. In addition, such individuals should be accessible to the teachers whenever they are needed. The content that the teachers recorded and represented in their final documentation reflected what the teachers (or school) thought was the most important aspect of their students' learning. These representative thoughts go through a choice-making process. As Lauren mentioned, selecting which records and which interpretations should be represented in documentation boards was difficult; facilitators can help this process—help them consider what kinds of thoughts they should represent, what records would be best representative of those thoughts, in what kinds of public displays the intended thoughts would be shown to make public displays more communicative to targeted audiences.

In this regard, the facilitation of their thinking about the purposes and intentions to do documentation was the most important aspect. Kroeger and Cardy (2006) found that prompting pre-service teachers in the process of documentation by asking questions is important for them to understand in order to incorporate this thinking process as part of the daily structure in the classroom.

Facilitators can also help an individual teacher's needs by assisting in group discussion and sharing. I emphasize that facilitators do not need to create the group nor teach ideas; instead, the role of a facilitator is to guide and help teachers initiate this action and thinking. Ponte, Ax, Beijaard, and Wubbels (2004) described the role of facilitators for teachers' development:

Facilitators cannot transfer professional knowledge about teaching but they can help teachers to develop that knowledge through praxis. They realize a situation—limited in time and space—and within that situation they realize their help in interaction with the teachers they are facilitating. Since interaction by definition implies certain reciprocity, we have therefore assumed a close relation between the way teachers develop professional knowledge through their action research and the way facilitator help them to do this. (p. 574)

Facilitating teachers' collaborative inquiries using protocols is "which protocol(s) will best match the group's purposes, helping group members to refocus when they stray from the topic, encouraging group members to delve more deeply and productively into the work being presented, supporting a presenter who becomes defensive or unfocused, and so on" (Blythe, Allen, & Powell, 2008, p. 66).

The teachers at Washington school also addressed the need for someone such as Holly who has an educational background in graphic design and possesses the technical skills to create different types of documentations. Holly actually raised interesting ideas, contributed to the thoughts on the meaning of documentation, and initiated the creation of class documentation boards, portfolios, and DVDs for the parents. Mary and Lauren's support for Holly's ideas indicate that art teachers can play an important role as the "atelierista"³¹ (Vecchi, 1998) in a

³¹ "The atelier serves two functions. First, it provides a place for children to become masters of all kinds of techniques, such as painting, drawing, and working in clay—all the symbolic languages. Second, it assists the adults in understanding processes of how children learn . . . to provide a workshop for documentation" (Vecchi, 1998, pp. 140-141).

school. With the collaboration of art teachers' expertise in design, classroom teachers can benefit from the creation of more meaningful documentation of their students' learning. Such expertise, however, is not just for an aesthetic documentation display, but it is also a more effective way to "capture action in the marks and needs to help a new reader discern these implied actions. Somehow, the 'reader' must translate the marks on the paper into a set of acts in order to accomplish some desired result" (Forman & Fyfe, 1998, p. 244).

Summary

The teachers used the word *document* to refer to both the product and the process. Documentation is not just about making records. Documentation is a teacher's systematic examination of what is occurring in their classrooms. Similar to a research process, documentation begins with recording, organizing systematically, analyzing, creating public displays, and sharing with various audiences. The teachers reported challenges in each step. The main difficulties that the teachers reported were in regard to sharing and collaborating with other teachers and parents.

As a result of this study, I suggested ways to do better documentation in each step. The suggestions for the whole process included the need and flexible use for templates, teachers' collaboration, and the need to incorporate documentation into lesson plans. Documentation of each step should be incorporated into lesson plans as a part of teaching. Templates and systems are essential to help teachers use documentation.

The teachers' actual uses and thoughts on documentation process indicate that documentation takes various roles: authentic assessment or teachers' self-reflection and lesson guidance. This study shows the deeper meaning of documentation as a collage of group work, a teachers' collaborative inquiry, and eventually as a part of teaching.

To incorporate documentation as a part of teaching, teacher educators should facilitate the whole process of documentation, emphasizing teachers' collaborative thinking for systematic study of their own students and practices.

Chapter 7

Conclusion

The teachers used the word *document* without differentiating its meaning from *record*. They also referred to it as a product or the act of making a product. The narrow focus on its meaning removed the teachers' attention away from the process of documentation. The study demonstrated that documentation goes beyond recording and making displays. It is a process of thinking, constructing knowledge and meaning-making, and reciprocal learning (Dahlberg, Moss, & Pence, 2007; Forman & Fyle, 1998). It is an act of teachers' systematic investigation of their students and practices.

While redefining the meaning of "documentation," I attempted to create the systematic process of documentation through recording, organizing, analyzing, making public displays, and sharing. The teachers in this study showed these steps. They, however, skipped and skimmed through stages. Documentation means the whole process. I argue that the whole process should have sustainable but flexible systems, teachers' collaboration, and be incorporated into lesson plans.

Each stage has its emphasis. In the first stage, teachers should plan what and how to record. This helps teachers produce a manageable and useful amount of records. Second, a simple collection of organized records is not a final product to share. Organizing records is to make records into a workable format. Third, during the analyzing stage, collaborative inquires among teachers should be emphasized. By reviewing organized records together, teachers will produce a deeper understanding of their students and teaching practices. Fourth, public displays represent group work. It is not about social relationships among students. Group work represented in documentation processes is a synthesized work of a variety of groups. Portfolios,

including group work, are part of documentation. Finally, sharing should be differentiated in two ways. *Sharing inward* is for children and teachers who participate in the group work that is recorded and represented by public displays. This is to “revisit” their work for further discussion. *Sharing outward* is for audiences such as parents or school visitors to engage in a conversation about students’ learning.

This study demonstrated that children can be involved in the documentation process and understand its effects on students’ learning. I emphasized that students should be involved in the whole process because the documentation process is a learning opportunity. Revisiting students’ learning and their practices as well as “cycles of inquiries” (Moran, 2007) with students should also be stressed. The continuous revisits that documentation provides can promote teachers’ inquiry (Moran, 2007; Edwards, 1998).

Based on the discussion of its meaning and process, I suggest an even deeper meaning of documentation. Documentation is a way to promote teachers’ collaborative inquiry. It is a collage of group work—a synthesis of group work represented through various records. I place emphasis on teachers’ facilitation as an orchestrator in students’ group learning. The group work supports better understanding of students’ learning and growth in contexts. Documentation, eventually, is a part of teaching.

In order to make documentation a part of teaching, teacher educators should facilitate the whole process of documentation, not just techniques to record or to make displays. Specifically, facilitators should emphasize teachers’ collaborative inquiry to discuss students’ learning and growth as well as their teaching through the documentation process. A practical suggestion is to consider the whole process of documentation into lesson plans. Sustainability is critical to

experience documentation. If documentation is an add-on, it will soon be relegated as ineffective under its constraints.

Implications

My goal for teacher education is to help teachers make documentation as an integral part of their teaching, that is, not an add-on, but rather folded into the daily structure of teaching. Teaching should be about internalizing the ways to externalize students' learning and experiences.

Documentation provides a context and support for self-reflective learning. I suggest that teacher educators take the role of "facilitator" in order to help teachers incorporate documentation into their teaching as a way to help them ponder the complexities of the classroom (Brockett, 1983; Clark, 1995; Morrison, 1995). Documentation is specifically concerned with the teachers' situated understanding of their own classrooms as it is constructed with children, colleagues, and other people.

It should also consider teachers' preferences of technologies and their intentions and purposes of selecting a particular recording system. Teachers need to learn how to make records. They need to understand the strengths and wakens of recording technologies. But simply providing different techniques for recording or creating final documentation does not help teachers integrate documentation into their teaching. Content should also be considered. How to record and what to record and how to go from records to public displays is a selective and intentional.

Most importantly, as the teachers in this study agreed, teacher education should provide opportunities for teachers' inquiry to think together with other teachers and teacher educators. Documentation provides a context. The role of teacher educators is changing from training

teachers based on research knowledge to facilitating their engagement in sharing, discussing their practices with other teachers, and learning from these practices (e.g., Darling-Hammond, et al., 2005; Manning-Morton, 2006; Perry, Komesaroff, Kavanagh, 2002; Postholm, 2008).

As the teachers at Washington school expressed the need for a “atelierista” who can help in the process of creating and using meaningful documentation. Art teachers may be able to play this “atelierista” role in order to help classroom teachers do documentation more efficiently. Art teachers can provide classroom teachers with the technical support required to record and make visual displays aesthetic as well as more communicative with different audiences.

As facilitators, teacher educators should help early childhood teachers be aware of the meaning of “teaching.” This awareness includes both the visible (recording and turning them into displays) and invisible (thinking and sharing) elements with documentation. Namely, this part involves “internalizing” ways of externalizing pedagogical works of students’ learning and teachers’ practices. This is a way to extend the meaning of professionalism for early childhood teachers in order for them to construct their own knowledge rather than just consume the knowledge imposed on them (Edwards, 1998).

It is important to analyze how early childhood teachers are actually doing documentation as well as to discover ways for teachers to do documentation for meaningful and authentic purposes in their own situations. As such, I suggest that teacher education embrace this facilitating approach to the documentation process. With this support, teachers can be more open to what they learn from others and can continuously use documentation in their classrooms as a core part of their teaching.

Limitations of the Study

This study has some limitations. One limitation was the unexpected low rate of consent for children's participation by their parents. This low rate of student participation limited my observation, teachers' use of documentation, students' conversation, and the creation of records and documentation of students and their work. At Washington school, this low rate of consent also hindered my intention of observing all the teachers in the class.

The study group was an important time for the teacher to record and create documentation. Since documentation emphasizes group work, whenever the teachers discussed children whom I did not have consent for participation, I had to exclude the teachers' words and documentation regarding the children in the findings. This low consent rate also limited my ability to show or include visual images in this work because the public displays which represents group work included those children whom I did not have parental permission for participation.

The biggest challenge for me was to observe what was not occurring. For some teachers, documentation was not part of their daily structure, so it was often difficult for me to find the right moments to be present in the classrooms when documentation or recording was actually occurring. The process of creating visual displays (stage 3) was also hard to observe. The teachers mostly worked on creating public displays outside of the school (at home) or after school. The observation and facilitation of teachers creating documentation could have been a more informed process. In turn, the results regarding final documentation were mostly obtained through teachers' interviews by analyzing the documentation that they created.

Teachers' meetings at Washington school were rarely observed unless the teachers had meetings with an assistant teacher or student teacher (as in the case of Lynn). However, Lynn

rarely shared documentation with her assistant teacher. Tricia was the only teacher in the classroom. Lynn and Tricia sometimes mentioned sharing documentation or records with other school staff or outside the school. I, however, was not well informed of the teachers' meeting schedules, and some meetings occurred informally. As a result, I learned about teachers' meetings during interviews. Direct observation of the teachers' interaction with other teachers through documentation would have provided richer contexts to explore.

The focus of this study was on the teachers. The response of parents and children to final documentation or any other records were from my observations and from the teachers' reports. Direct interviews with parents and children could have provided in-depth understanding of their perspectives on documentation processes and their effect on students' learning and parents' understanding of their children.

Future Study

Different from the initial purposes of this research, the teachers at Lincoln school showed how early childhood teachers in the public classes view documentation. In order to conduct further investigation on the process of documentation by public school teachers, the facilitating role should be emphasized during the study. In doing so, an improved study can track the progress of changes in teachers' attitudes, as well as note the facilitator's thoughts on the adoption of documentation strategies. A research study with an emphasis on the facilitator's role in public early childhood classes will help provide a better understanding of in-service teachers' changes on definition, thoughts, meanings, and the use and purpose of documentation in their classrooms. Ultimately, such research can contribute to developing a teacher education program that incorporates documentation in a realistic approach and helps teachers externalize their practices as well as students' learning.

The study focused mainly on the teachers' documentation. Based on the model that illustrates the process of documentation, future study can extend to look into the interactions between teachers and students in the process. The interactions represented in process of documentation can show more dynamic aspects of students' learning and teachers' teaching. The interactions between teachers and students are important in students' learning not only to provide emotional support to students, but also to provide classroom organization and instructional support such as improving quality of feedback or language modeling (TeacherStone, 2013). Studies can investigate what kinds of interactions occur in the documentation process as well as how the process improves the quality of interaction between teachers and students.

Future study can also explore more diverse roles of documentation in early childhood classrooms. This study discussed documentation mainly as a way of authentic assessment and teachers' self-study of their own teaching. What is represented and thought in the process of documentation can demonstrate more diverse aspects of a classroom (or a school). For example, documentation can be a curricular lens through which to view what teachers teach and how they teach in a classroom. The process of documentation can help teachers develop the curriculum through constant revisiting. Future study can look closely into what effects, on a daily basis, documentation has on curriculum. Teacher-initiated instructional strategies that are not driven by standardized curriculum can strengthen the overall instructional approach.

The teachers, particularly at Washington School, made more visual displays than described in the study. This study described portfolios and documentation boards because they were the teachers' focus. For example, although the teachers at Washington school played video clips at the culminating event to show students' discussion, the teachers rarely talked about it. Future study could explore more diverse formats of displays to see what aspects of students'

learning, experiences, and doings in the classroom these displays can represent and what influences these displays can have on students' learning and teachers' teaching.

I want to extend my study to international settings. For example, Korean early childhood education has unique characteristics in comparison to American education. As such, research conducted in this environment may result in a different process, use, and purpose of documentation.

The most intriguing characteristic of Korean early childhood education is the national curriculum. The latest national curriculum (revised in 2007 and applied in 2009) emphasizes observing students and recording students' growth and development in various ways. The literature, however, indicates that Korean early childhood teachers are not following these directions because they feel confined by the national curriculum and they focus on misbehaviors or particular behaviors (Nah & Kwak, 2011). The study of how to help teachers move beyond the national curriculum is a further area of research. Specifically, a broadened meaning and understanding of documentation may benefit Korean early childhood educators.

Another interesting aspect of Korean early childhood education is the evaluation system. Recently, the Korean government initiated an accreditation system. Since 2008, the evaluation and accreditation of schools has had a large impact on the quality of early childhood institutes (Nah & Kwak, 2011). Documentation can be used as part of the evidence to improve the quality of the centers. By examining the concrete evidence, outside evaluators can provide more realistic advice on improving the quality of schools. The process of turning documentation into evidence for school evaluation can be studied.

Korean traditional education emphasizes a group orientation; however, its meaning is very narrow. Kwon (2004) showed how the group orientation results in the expectation that

young students do the same work at the same time. By exploring more cultural and social contexts in Korea, the study of documentation will contribute to a broader understanding of students' diverse needs and discover various ways to meet those students' needs within the collective culture.

Epilogue

At the beginning of this study, I thought I understood documentation because I knew documentation techniques. I had taught in a Reggio Emilia inspired preschool. I had a long-term scholastic interest in documentation. However, at the end of this study, I humbly confess that my understanding was actually very limited. In the course of this research, I learned from the teachers with whom I worked in this study how diverse ways and processes of pedagogical documentation can be created. Additionally, I learned of the diverse meanings of documentation according to contexts. Documentation is the situated understanding and meaning-making process, not just the various ways to record such processes. Mostly importantly, it's evolving. Such evolution is occurring not just in ways to create documentation but also in its meanings.

Thanks to the teachers, I have become more confident in believing that pedagogical documentation is an important tool for teachers' professional growth. As a starting point with the understanding of pedagogical documentation that I learned from the teachers, I would like to pursue helping teachers make documentation a core element of their teaching.

References

- Agostin, T. M., & Bain, S. K. (1997). Predicting early school success with developmental and social skills screeners. *Psychology in the Schools, 34*, 219-228.
- Anderson, G.L., Herr, K., & Nihlen, A. (2007). *Studying your own school: An educator's guide to practitioner action research*. (2nd ed.). Thousand Oaks, CA: Corwin Press.
- Anderson, K. M. (2007). Differentiating instruction to include all students. *Preventing School Failure, 51*(3), 49-54.
- Ayers, W. (2010). *To teach: The journey of a teacher* (3rd ed.). New York: Teachers College Press.
- Barbour, N. B. (1992). Early childhood gifted education: A collaborative perspective. *Journal for the Education of the Gifted, 15*, 145-162.
- Bersani, C., & Jarjoura, D. (2002). Developing a sense of “we” in parent/teacher relationships. In V. Vu, A. Stremmel, & L. Hill (Eds.), *Teaching and learning: collaborative exploration of the Reggio Emilia approach* (pp. 66-82). Columbus, OH: Merrill/Prentice-Hall.
- Blythe, T., Allen, D., & Powell, B. S. (2008). *Looking at student work together* (2nd ed.). New York: Teachers College Press.
- Boardman, M. (2007). ‘I know how much this child has learned. I have proof!’ Employing digital technologies for documentation processes in kindergarten. *Australian Journal of Early Childhood, 32*(3), 59-66.
- Bowman, B.T., & Stott, F. M. (1994). Understanding development in a cultural context: the challenge for teachers. In B. L. Mallory & R. S. New (Eds.), *Diversity and developmentally appropriate practice: Challenges for early childhood education* (pp. 119-133). New York: Teachers College Press.

- Bray, J. N. (2002). Uniting teacher learning: Collaborative inquiry for professional development. *New Directions for Adult and Continuing Education*, 94, 83-91.
- Brazelton, T. B., & Greenspan, S. I. (2007). Why children need experiences tailored to their uniqueness. *Scholastic Early Childhood Today*, 21, 10-11.
- Bredenkamp, S., & Copple, C. (Eds.). (1997). *Developmentally appropriate practice in early childhood programs* (Rev. ed.). Washington, DC: National Association for the Education of Young Children.
- Brockett, R. (1983). Facilitator roles and skills. *Lifelong Learning: The Adult Years*, 6(5), 7-9.
- Bruner, J. (1996). *The culture of education*. Cambridge, MA: Harvard University Press.
- Buldu, M. (2010). Making learning visible in kindergarten classrooms: Pedagogical documentation as a formative assessment. *Teaching and Teacher Education*, 26, 1439-1449.
- Calderhead, J. (1992). The role of reflection in learning to teach. In L. Valli (Ed.), *Reflective teacher education: Cases and critiques* (pp. 139-146). Albany, NY: State University of New York Press.
- Catapano, S. (2005). Teacher professional development through children's project work. *Early Childhood Education Journal*, 32, 261-267.
- Ching, C. C., Wang, X. C., Shih, M., & Kedem, Y. (2006). Digital photography and journals in a K-1 classroom: Toward meaningful technology integration in early childhood education. *Early Education & Development*, 17, 347-371.
- Chittenden, E. (1991). Authentic assessment, evaluation, and documentation of student performance. In V. Perrone (Ed.), *Expanding student assessment* (pp. 22-31). Alexandria, VA: Association for Supervision and Curriculum Development.

- Clark, C. M. (1995). *Thoughtful teaching*. New York: Teachers College Press.
- Clements, D., & Sarama, J. (2003). Young children and technology: What does the research say? *Young Children*, 58(6), 34-40.
- Coleman, L. J. (1994). Portfolio assessment: A key to identifying hidden talents and empowering teachers of young children. *Gifted Child Quarterly*, 38, 65-69.
- Curtis, D., & Carter, M. (2003). *Designs for living and learning: Transforming early childhood environments*. St. Paul, MN: Redleaf Press.
- Dahlberg, G., Moss, P., & Pence, A. (2007). *Beyond quality in early childhood education and care: Languages of evaluation* (2nd ed.). London and New York: Routledge.
- Darling-Hammond, L., Hammerness, K., Grossman, P., Rust, F., & Shulman, L. (2005). The design of teacher education programs. In L. Darling-Hammond & J. Bransford (Eds.), *Preparing teachers for a changing world: What teachers should learn and be able to do* (pp. 390-441). San Francisco: Jossey-Bass.
- Denzin, N. K., & Lincoln, Y. S. (2005). Introduction: The discipline and practice of qualitative research. In N. Denzin and Y. Lincoln (Eds.), *The Sage handbook of qualitative research* (3rd ed., pp. 1-32). Thousand Oaks, CA: Sage Publications.
- Dewalt, K. M., & Dewalt, B. R. (2002). *Participant observation: A guide for fieldworkers*. Lanham, MD: Rowman & Littlefield.
- Edwards, C. (1998). Partner, nurturer, and guide: The role of the teacher. In C. Edwards, L. Gandini, & G. Forman (Eds.), *The Hundred languages of children* (2nd ed., pp. 179-198). Norwood, NJ: Ablex.

- Edwards, C., Gandini, L., & Forman, G. (1998). Introduction: Background and starting points. In C. Edwards, L. Gandini, & G. Forman (Eds.), *The Hundred languages of children* (2nd ed., pp. 5-25). Norwood, NJ: Ablex.
- Eisenman, L., Chamberlin, M., & McGahee-Kovac, M. (2005). A teacher inquiry group on student-led IEPs: Starting small to make a difference. *Teacher Education and Special Education*, 28, 195-206.
- Elliott, S.N., Gresham, F.M., Freeman, T., & McCloskey, G. (1988). Teacher and observer ratings of children's social skills: Validation of the Social Skills Rating Scales. *Journal of Psychoeducational Assessment*, 6, 152-161.
- Ellis, J. (2006). Researching children's experience hermeneutically and holistically. *The Alberta Journal of Educational Research*, 52, 111-126.
- Erickson, F. (1986). Qualitative methods in research on teaching. In M. C. Wittrock (Ed.), *Handbook of research on teaching* (3rd ed.) (pp. 119-161). New York: Macmillan.
- Fasoli, L. (2003). Reading photographs of young children: Looking at practices. *Contemporary Issues in Early Childhood*, 4(1), 32-47.
- Feinburg, S., & Mindess, M. (1994). *Eliciting children's full potentials: Designing & evaluating developmentally based programs for young children*. Pacific Grove, CA: Brooks/Cole Publishing Company.
- Fleer, M. (2003). Early childhood education as an evolving 'Community of Practice' or as Lived 'Social Reproduction': Researching the 'taken-for-granted'. *Contemporary Issues in Early Childhood*, 4(1), 64-79.
- Fleer, M., & Richardson, C. (2003). Collective Mediated Assessment: moving towards a sociocultural approach to assessing children's learning. *Journal of Australian*

- Research in Early Childhood Education*, 10, 41-55.
- Fleet, A., & Patterson, C (2009). A timescape: Personal narratives - professional spaces. In S. Edwards & J. Nuttall (Eds.), *Professional learning in early childhood education* (pp. 9-26). Rotterdam: Sense Publisher.
- Flick, U. (2007). *Managing quality in qualitative research*. London, UK: Sage Publications.
- Forman, G. (1999). Instant Video Revisiting: The Video Camera as a "Tool of the Mind" for Young Children. *Early Childhood Research & Practice*, 1(2). Retrieved March 13, 2010, from <http://ecrp.uiuc.edu/v1n2/forman.html>
- Forman, G., & Fyfe, B. (1998). Negotiated learning through design, documentation, and discourse. In C. Edwards, L. Gandini, & G. Forman (Eds.), *The Hundred languages of children* (2nd ed., pp. 239-260). Norwood, NJ: Ablex.
- Gandini, L. (2005). The evolution of the atelier: Conversations from Reggio Emilia. In L. Gandini (Ed.), *In the spirit of the studio: Learning from the atelier of Reggio Emilia* (pp. 132-143). New York: Teachers College Press.
- George, P. S. (2005). A rationale for differentiating instruction in the regular classroom. *Theory into Practice*, 44, 185-193.
- Gestwicki, C. (2010). *Developmentally appropriate practice: Curriculum and development in early education*. Belmont, CA: Wadsworth Publishing.
- Goldhaber, J. (2007). The development of an early childhood teacher research collaborative. *Theory into Practice*, 46, 74-80.
- Goldhaber, J., & Smith, D. (1997). "You look at things differently": The role of documentation in the professional development of a campus child care center staff. *Early Childhood Education Journal*, 25, 3-10.

- Goldhaber, J., & Smith, D. (2002). The development of documentation strategies to support teacher reflection, inquiry, and collaboration. In V. Fu, A. Stremmel, & L. Hill (Eds.), *Teaching and learning: Collaborative exploration of the Reggio Emilia approach* (pp. 147-160). Columbus, OH: Merrill/Prentice-Hall.
- Good, L. (2005). Snap it up! Using digital photography in early childhood. *Childhood Education*, 82, 79-85.
- Goodnough, K. (2005). Fostering teacher learning through collaborative inquiry. *The Clearing House*, 79, 88-92.
- Graue, M. E., & Walsh, D. J. (1998). *Studying children in context: Theories, methods & ethics*. Thousand Oaks: Sage Publications.
- Gresham, F.M., & Elliott, S.N. (1993). Social skills interventions for children. *Behavior Modification*, 17, 287-313.
- Gullo, D. F. (1994). *Understanding assessment and evaluation in early childhood education*. New York: Teachers College Press.
- Helm, J. H., & Gronlund, G. (Spring, 2000). Linking standards and engaged learning in the early years. *Early Childhood Research & Practice*, retrieved from <http://www.ecrp.uiuc.edu/v2n1/helm.html>. September, 2007.
- Helm, J. H., & Helm, A. (2006). *Building support for your school: How to use children's work to show learning*. New York: Teachers College Press.
- Helm, J. H., Beneke, S., & Steinheimer, K. (2007). *Windows on learning: Documenting young children's work*. New York: Teachers College Press.

- Helterbran, V. R., & Fennimore, B. S. (2004). Collaborative early childhood professional development building from a base of teacher investigation. *Early Childhood Education Journal*, 31, 267-271.
- Hertzog, N. B. (2005). Equity and access: Creating general education classrooms responsive to potential giftedness. *Journal for the Education of the Gifted*, 29, 213-257.
- Hertzog, N. B. (2007). Transporting pedagogy: Implementing the Project Approach in two first-grade classrooms. *Journal of Advanced Academics*, 18, 530-564.
- Hong, S. B., & Broderick, J. T. (2003). Instant Video Revisiting for Reflection: Extending the Learning of Children and Teachers. *Early Childhood Research & Practice*, 5(1). Retrieve March 13, 2010, from <http://ecrp.uiuc.edu/v5n1/hong.html>
- Hong, S. B., & Trepanier-Street, M. (2004). Technology: A tool for knowledge construction in a Reggio Emilia inspired teacher education program. *Early Childhood Education Journal*, 32, 87-94.
- Hyun, E. (2003). What does the No Child Left Behind Act mean to early childhood teacher educators?: A call for a collective professional rejoinder. *Early Childhood Education Journal*, 31, 119-125.
- Kang, J. (2007). How many languages can Reggio children speak? Many more than a hundred!. *Gifted Child Today*, 30(3), 45-48, 65.
- Katz, L. G., & Chard, S. C. (1996). *The contribution of documentation to the quality of early childhood education*. (ERIC Digest Identifier ED393608).
- Katz, L. G., & Chard, S. C. (2000). *Engaging children's minds: The project approach* (2nd ed.). Norwood, NJ: Ablex Publishing Corporation.
- Kilpatrick, W. H. (1918). The Project Method. *Teachers College Record*, 19, 319-334.

- Kroeger, J., & Cardy, T. (2006). Documentation: A hard-to-reach place. *Early Childhood Education Journal*, 33, 389–98.
- Kronberg, R., York-Barr, J., Arnold, K., Gombos, S., Truex, S., Vallejo, B., et al. (1997). *Differentiated Teaching & learning in heterogeneous classrooms: Strategies for meeting the needs of all students*. (ERIC Document Reproduction No. 418538).
- Kwon, Y. I. (2004). Early childhood education in Korea: Discrepancy between national kindergarten curriculum and practices. *Educational Review*, 56, 297-312.
- Lane, K. L., Wehby, J. H., & Cooley, C. (2006). Teacher expectations of students' classroom behavior across the grade span: Which social skills are necessary for success? *Exceptional Children*, 72, 153-167.
- Lee, K., & Walsh, D. J. (2005). Independence and Community: Teaching Midwestern. *Journal of Early Childhood Teacher Education*, 26, 59-77.
- Lewis, C. (2002). *Lesson study: A handbook of teacher-led instructional change*. Philadelphia, PA: Research for Better Schools.
- MacDonald, M. (2007a). Developmental theory and post-modern thinking in early childhood education. *Canadian Children*, 32(2), 7-10.
- MacDonald, M. (2007b). Toward formative assessment: The use of pedagogical documentation in early elementary classrooms. *Early Childhood Research Quarterly*, 22, 232-242.
- MacDonald, M. (2008). Co-constructing understandings : The use of photographs in data generation and verification. *Journal of Ethnographic & Qualitative Research*, 2, 238-245.
- Malaguzzi, L. (1998). History, ideas, and basic philosophy: An interview with Lella Gandini. In C. Edwards, L. Gandini, & G. Forman (Eds.), *The Hundred languages of children* (2nd ed., pp. 49-97). Norwood, NJ: Ablex.

- Manning-Morton, J. (2006). The personal is professional: Professionalism and the birth to threes practitioner. *Contemporary Issues in Early Childhood*, 7(1), 42-52.
- Marshall, C., & Rossman, G. B. (1989). *Designing qualitative research*. Newbury Park, CA: Sage Publications.
- Marshall, C., & Rossman, G. B. (1999). *Designing qualitative research* (3rd ed.). Thousand Oaks, CA: Sage Publications.
- Mills, L. (1996). Educating undergraduate education majors in the use of portfolio assessment for preschoolers. *Journal of Early Childhood Teacher Education*, 17(2), 32-38.
- Moran, M. J. (2007). Collaborative action research and project work: Promising practices for developing collaborative inquiry among early childhood preservice teachers. *Teaching and Teacher Education*, 23, 418-431.
- Morelock, M. J., & Morrison, K. (1999). Differentiating 'developmentally appropriate': The multidimensional curriculum model for young gifted children. *Roeper Review*, 21, 195-200.
- Morrison, G. S. (1995). Early childhood professionals: Toward a new identity. *Journal of Early Childhood Teacher Education*, 16(3), 17-19.
- Nah, K. O., & Kwan, J. I. (2011). Child assessment in early childhood education and care settings in South Korea. *Asian Social Science*, 7(6), 66-78.
- New Webster's dictionary of the English language (1981). Melrose Park, IL: Delair Publishing Company.
- Nimmo, J. (1998). The child in community: Constraints from the early childhood lore. In C. Edwards, L. Gandini, & G. Forman (Eds.), *The hundred languages of children* (2nd ed., pp. 295-312). Norwood, NJ: Ablex.

- Parnell, W., & Bartlett, J. (2012). iDcoumentation: How smartphones and tables are changing documentation in preschool and primary classrooms. *Young Children*, 67(3), 50-57.
- Perry, C., Komesaroff, L., & Kavanagh, M. (2002). Providing Space for Teacher Renewal: The role of the facilitator in school-university partnerships. *Asia-Pacific Journal of Teacher Education*, 30, 243-257.
- Pollman, M. J. (2000). Using technology to document children's work. *Journal of Early Childhood Teacher Education*, 21, 261-267.
- Ponte, P., Ax, J., Beijgaard, D. & Wubbels, T. (2004). Teacher's development of professional knowledge trough action research and the facilitation of this by teacher educators. *Teaching and Teacher Education*, 20, 571-588.
- Postholm, M. B. (2008). The start-up phase in a research and development work project: A foundation for development. *Teaching and Teacher Education*, 24, 575-584.
- Ravitch, D. (2010). *The death and life of the great American school system: How testing and choice are undermining education*. New York: Basic Books.
- Rinaldi, C. (1998). Projected curriculum constructed through documentation—Progettazione: An interview with Lella Gandini. In C. Edwards, L. Gandini, & G. Forman (Eds.), *The Hundred languages of children* (2nd ed., pp. 113-137). Norwood, NJ: Ablex.
- Roschelle, J. (1992). Learning by collaborating: Convergent conceptual change. *The Journal of the Learning Sciences*, 2, 235-276.
- Schiller, J., & Tillett, B. (2004). Using digital images with young children: Challenges of integration. *Early Child Development and Care*, 174, 401-414.
- Schulze, S. (2007). The usefulness of reflexive photography for qualitative research: A case study in higher education. *South African Journal of Higher Education*, 21, 536-553.

- Schwandt, T. A. (2000). Three epistemological stances for qualitative inquiry: Interpretivism, hermeneutics, and social constructionism. In N. K. Denzin & Y. S. Lincoln (eds.), *Handbook of qualitative research* (2nd ed., pp. 189-214). Thousand Oaks, CA: Sage.
- Seitz, H. (2008). The power of documentation in the early childhood classroom. *Young Children*, 63(2), 88-93.
- Spradley, J. (1979). *The ethnographic interview*. New York: Holt, Rinehart & Winston.
- Stipek, D., & Byler, P. (2004). The early childhood classroom observation measure. *Early Childhood Research Quarterly*, 19, 375–397.
- Tobin, J., Wu, D., & Davidson, D. (1989). *Preschool in three cultures: Japan, China, and the United States*. New Haven, CT: Yale University Press.
- Tobin, J., Hsueh, Y., & Krasawa, M. (2009). *Preschool in three cultures revisited: China, Japan, and the United States*. Chicago, IL: University Chicago Press.
- Vakil, S., Freeman, R., & Swim, T. J. (2003). The Reggio Emilia Approach and inclusive early childhood programs. *Early Childhood Education Journal*, 30, 187-192.
- Vartuli, S., & Rohs, J. (2006). Conceptual organizers of early childhood curriculum content. *Early Childhood Education Journal*, 33, 231-237.
- Vecchi, V. (1998). Role of atelierista: An interview with Lella Gandini. In C. Edwards, L. Gandini, & G. Forman (Eds.), *The Hundred languages of children* (2nd ed., pp. 139-147). Norwood, NJ: Ablex.
- Walsh, D. J. (in preparation). *The craft: A short introduction of teaching*.
- Wang, F., Kinzie, M., McGuire, P., & Pan, E. (2010). Applying technology to inquiry- based learning in early childhood education. *Early Childhood Education Journal*, 37, 381-389.

- Wang, X. C., Kedem, Y., & Hertzog, N. (2004). Scaffolding young children's reflections with student created PowerPoint presentations. *Journal of Research in Childhood Education*, 19, 159–174.
- Weinbaum, A., Allen, D., Blythe, T., Simon, K., Seidel, S., & Rubin, C. (2004). *Teaching as inquiry: Asking hard questions to improve practice and student achievement*. New York: Teacher College Press.
- Wenger, E. (1998). *Communities of practice: Learning, meaning and identity*. Cambridge: Cambridge University Press.
- Xue, Y., & Meisels, S. J. (2004). Early literacy instruction and learning in kindergarten: Evidence from the early childhood longitudinal study—Kindergarten class of 1998–1999. *American Educational Research Journal*, 41, 191–229.

Appendix A

Interview Questions for Teachers

Formal Interviews

1. First interview

1. 1. Personal background

I would like to ask questions about your background. Could you tell me about your educational experiences and teaching experiences? In your educational experiences, have you learned about documentation? What specifically did you learn?

When you taught in other schools, did you use documentation? If so, could you give me some examples of how you did documentation? If you did not use documentation, could you give me some examples of what methods you used to understand your students?

1. 2. Teaching experiences

How long have you been working at this school? Based on your teaching experiences here, what do you think documentation is? What kinds of difficulties do you have in using documentation? Are there any aspects of the current documentation used in your classroom that you would like to change? How would you want to change these things? What are some of your goals for this semester, as related to documentation strategies?

2. Second interview

2. 1. Overall experiences of documentation

Could you tell me about your overall experiences of using documentation strategies? You described your experiences of using documentation in (the previous formal and informal interviews). (Remind them of what they said). Do you want to add more to your previous thoughts?

2. 2. The previous goals related with the process of documentation

You described your goals for the semester during the previous interviews (Remind them of what they said from the previous interviews). Could you give me examples of changes that you have made so far related with the goals that you discussed? Do you want to add more to your previous thoughts?

2. 3. Difficulties

I would like to know about some of the challenges that you have experienced in doing documentation so far. Could you give me examples of difficulties you have had in using documentation so far? (Remind them of their descriptions from the previous interviews). Do you want to add more to your previous thoughts? What kinds of efforts have you made to address the challenges you are experiencing?

2. 4. Influences

I would like to know more about the influence of documentation on (e.g., children and parents) in your classroom.

2. 4. 1. Could you give me examples of how you think the documentation process has influenced your students? (Remind them of their descriptions from the previous interviews) Do you want to add more to your previous thoughts?

2. 4. 2. Could you tell me examples of parents' responses to the documentation that you shared with them? What kinds of conversations did you have with parents at the parent-teacher conferences? (Remind them of some conversations that they had with parents through documentation at parent-teacher conferences). What do you think of those conversations? Could you explain more about them?

2. 5. Difficulties

You mentioned that you made some changes (experienced difficulties) in your classroom by using documentation. Could you tell me which documentation strategies you want to continue using or which you want to use more in the future?

Informal Interviews

1. Recording

1. 1. Could you tell me about the pictures [records] that you took today?

I saw you taking pictures in [particular situation]. Why did you choose to record (e.g., take photos) the particular (context, specific children's words, or artifacts)? Why did you write down the particular context of the situation?

1. 2. Could you tell me about your records of children's words today?

I saw you writing something down in [particular situation]. What did you write? Why did you write down the particular context of that situation?

2. Creating different formats of documentation

2. 1. I would like to learn about the documentation that you created.

2.1.1. Could you tell me what you wanted to show through this documentation? What are the focus areas?

2.1.2. Could you tell me what kinds of [records] are used? (why) (e.g., photos, children's words, teachers' reflections, or children's artifacts)

2.1.3. Could you tell me why you decided to include [particular records] photos and children's words? Why did you choose to include the particular (pictures, context, specific children's words, or artifacts) in this documentation?

2.1.4. Could you tell me why you think the particular situation is important to show?

2.1.5. Do you see difference between the first (previous) documentation and the second documentation? Could you tell me how you think they are different?

2. 2. I would like to know if there are some differences between this form of documentation and the previous ones.

2.2.1. Did you have different purposes (e.g., focuses, different learning aspects) in mind when you created this documentation?

2. 3. I would like to know some challenges you experienced when you created this documentation.

2.3.1. What limitations or challenges did you experience when you created this documentation?

3. Sharing documentation

3. 1. I would like to know how the documentation is used.

3. 1. 1. Do you think your teaching skills have changed in process of documentation? Could you tell me some examples of the changes you experienced?

3. 1. 2. Do you think you have changed the way you interact with students (according to their different interests or readiness) through the process of documentation?

3. 1. 3. What kinds of questions did you ask the children when they saw the documentation? What kinds of conversations did you have with the children?

3. 1. 4. What kinds of conversations did you have with other teachers or parents about the documentation?

3. 2. I would like to know what you think about the children's responses to documentation.

3. 2. 1. Could you give me examples of the children's responses to the documentation? What do you think they thought about by looking at the documentation?

3. 2. 2. What kinds of conversations did they have with you, their peers, or their parents?

3. 2. 3. Did you see any influences of the documentation on the children?

3. 3. I would like to learn about how you think you can involve the children in the process of documentation.

3. 3. 1. Why did you let the children be involved in recording their works/peer works in this particular context?

3. 3. 2. What do you think about the children's participation in the process of documentation?

3. 4. I would like to know how you shared the documentation with parents.

3. 4. 1. Could you tell me what you think parents usually see from the documentation? Could you give me some examples?

3. 4. 2. Could you tell me about how parents responded to the documentation? Could you give me some examples?

Appendix B

Consent Letter for Focal Teachers

You are invited to participate in a research project on “Reflective early childhood teachers: Influences of documentation on early childhood classrooms.” This project will be conducted by Jinju Kang under supervision of my advisor, Dr. Daniel Walsh from the Department of Curriculum and Instruction at the University of Illinois at Urbana-Champaign.

In this project which will last from Spring semester 2011 to Fall semester 2011, Ms. Kang will observe and take field notes in your classroom twice a week. Each observation session will last for about 3 hours. In addition, Ms. Kang will interview you informally after each observation, which will last around 15-20 minutes as well as formally three times, which will last 30 minutes to 1 hour during the whole research period. In these interviews, you will be asked to discuss your experiences about the process of making documentation. Ms. Kang will also observe your teachers’ meeting and teacher-parent conferences by taking field notes. The interviews and your conversation with your colleague teachers and parents at the meetings will be audio-recorded with your permission. The audio files/tapes will be transcribed and coded and all of individuals’ names will be removed. Our conversation can occur through emails. All the emails will be saved as a word/PDF file and the originals will be deleted from my email account. Audio files/tapes and all other information obtained during this research project will be kept secure and destroyed after 10 years. All the information will be kept in a locked file cabinet and in a password protected computer and will be accessible only to project personnel.

We do not anticipate any risk to this study greater than normal life and we anticipate that the results will increase our understanding of how to help other early childhood teachers use documentation strategies in classrooms as a way for their better understanding of students, more meaningful teaching strategies, better communication with people involved in your child’s learning. The results of this study will be used primarily for the researcher’s Doctoral dissertation and may also be used for a scholarly report, a journal article, conference presentation and future research. In any publication or public presentation pseudonyms will be substituted for any identifying information.

In the space at the bottom of this letter, please indicate whether you do or do not want to participate in this project. Your participation in this project is completely voluntary, and you are free to withdraw at any time and for any reason without penalty. You are also free to refuse to answer any questions you do not wish to answer. By participating in this study, you will be offered a gift card as remuneration. If you want, you will receive a copy of the research results after this project is completed.

If you have any questions about this research project, please contact Ms. Kang by telephone at (217) 721-7204 or by e-mail at jkang8@illinois.edu or Dr. Walsh by telephone at (217) 244-1218 or by e-mail at danielw@illinois.edu.

Sincerely,
Jinju Kang

I have read and understand the above information and voluntarily agree to participate in the research project described above. I have been given a copy of this consent form.

_____ Date _____ Signature

_____ Yes _____ No

I do agree to participate in this project.

_____ Yes _____ No

I do agree to have the interviews and my conversation with other teachers and parents at the meetings audio-recorded for the purposes of transcription.

_____ Yes _____ No

I do agree to use audio files at educational conferences.

If you have any questions about your rights as a research participant please contact Anne Robertson, Bureau of Educational Research, 217-333-3023, or arobrtsn@uiuc.edu or the Institutional Review Board at 217-333-2670 or irb@uiuc.edu

Appendix C

Consent Letter for Non-Focal Teachers

You are invited to participate in a research project on “Reflective early childhood teachers: Influences of documentation on early childhood classrooms.” This project will be conducted by Jinju Kang under supervision of my advisor, Dr. Daniel Walsh from the Department of Curriculum and Instruction at the University of Illinois at Urbana-Champaign.

In this project which will last from Spring semester 2011 to Fall semester 2011, Ms. Kang will observe and take field notes in your classroom twice a week. Each observation session will last for about 3 hours. Ms. Kang will also observe your teachers’ meeting and teacher-parent conferences by taking field notes. Your conversation with your colleague teachers and parents at the meetings will be audio-recorded with your permission. The audio files/tapes will be transcribed and coded and all of individuals’ names will be removed. Audio files/tapes and all other information obtained during this research project will be kept secure and destroyed after 10 years. All the information will be kept in a locked file cabinet and in a password protected computer and will be accessible only to project personnel.

We do not anticipate any risk to this study greater than normal life and we anticipate that the results will increase our understanding of how to help other early childhood teachers use documentation strategies in classrooms as a way for their better understanding of students, more meaningful teaching strategies, better communication with people involved in your child’s learning. The results of this study will be used primarily for the researcher’s Doctoral dissertation and may also be used for a scholarly report, a journal article, conference presentation and future research. In any publication or public presentation pseudonyms will be substituted for any identifying information.

In the space at the bottom of this letter, please indicate whether you do or do not want to participate in this project. Your participation in this project is completely voluntary, and you are free to withdraw at any time and for any reason without penalty. You are also free to refuse to answer any questions you do not wish to answer. By participating in this study, you will be offered a gift card as remuneration. If you want, you will receive a copy of the research results after this project is completed.

If you have any questions about this research project, please contact Ms. Kang by telephone at (217) 721-7204 or by e-mail at jkang8@illinois.edu or Dr. Walsh by telephone at (217) 244-1218 or by e-mail at danielw@illinois.edu.

Sincerely,
Jinju Kang

I have read and understand the above information and voluntarily agree to participate in the research project described above. I have been given a copy of this consent form.

_____ Date _____ Signature

_____ Yes _____ No I do agree to participate in this project.

_____ Yes _____ No I do agree to have my conversation with other teachers and parents at the meetings audio-recorded for the purpose of transcription.
audio-recorded for the purpose of transcription.

_____ Yes _____ No I do agree to use audio files at educational conferences.

If you have any questions about your rights as a research participant please contact Anne Robertson, Bureau of Educational Research, 217-333-3023, or arobrtsn@uiuc.edu or the Institutional Review Board at 217-333-2670 or irb@uiuc.edu

Appendix D

Consent Letter for Parents of A Minor

Dear Parent:

You are invited to participate in a research project on “Reflective early childhood teachers: Influences of documentation on early childhood classrooms.” This project will be conducted by Jinju Kang under supervision of my advisor, Dr. Daniel Walsh from the Department of Curriculum and Instruction at the University of Illinois at Urbana-Champaign.

In this project, Ms. Kang would like to include your child, along with his or her classmates. Ms. Kang will observe your child’s classroom twice a week for this semester. Each observation session will last for about 3 hours. During observations, Ms. Kang will observe the process of your child’s teacher(s) making documentation about your child’s learning and growth, your child’s interaction with the teachers and their friends through documentation which will include the teacher (s) taking pictures or videos of your child during classroom activities. All the documentation activities will be done only by your child’s teachers. In this study only with your permission, Ms. Kang will collect copies of various types of teacher-made documentation (i.e., photos, video clips, child’s work samples, documentation panels) that include your child as visual evidences of the study results.

With your permission, Ms. Kang will also attend a teacher-parent conference of your child. At the conference, Ms. Kang will observe and take field notes of your interaction with your child’s teacher(s) through documentation that the teacher made. Your conversation about your child with the teacher(s) will be audio-recorded with your permission.

Audio files, video files, photos and all other information obtained during this research project will be kept secure and will be erased after 10 years. The audio/video files will be kept in a locked file cabinet and in a password protected computer and will be accessible only to Ms. Kang and Dr. Walsh. The audio and video files will be transcribed and coded and individuals’ names will be removed. Pseudonyms or codes will be substituted for the names of children and the school. This helps protect confidentiality. If needed, you will have opportunities to review video clips to be used in the study. The results of this study will be used for a dissertation, an educational report such as journal article and conference presentation.

We do not anticipate any risk to this study greater than normal life. We anticipate that the results will increase our understanding of how to help other early childhood teachers use documentation strategies in classrooms as a way for their better understanding of students, more meaningful teaching strategies, and communication with people involved in your child’s learning. The results of this study will be used primarily for the researcher’s doctoral dissertation and may also be used for a scholarly report, a journal article, conference presentation and future research. In any publication or public presentation, pseudonyms will be substituted for any identifying information.

In the space at the bottom of this letter, please indicate whether you do or do not want your child and yourself to participate in this project. Your and your child’s participation in this project is completely voluntary, and you are free to withdraw at any time and for any reason without penalty. The choice to participate or not will not impact your child’s grades or status at school. Ask your child to bring one copy of this completed form to his or her teacher by February 25th. The second copy is to keep for your records. If you have any questions about this research project, please feel free to contact us either by mail, e-mail, or telephone. Please keep a copy of this form for your records.

If you have any questions about this research project, please contact Ms. Kang by telephone at (217) 721-7204 or by e-mail at jkang8@illinois.edu or Dr. Walsh by telephone at (217) 244-1218 or by e-mail at danielw@illinois.edu .

Sincerely,
Jinju Kang

I have read and understand the above information and voluntarily agree to participate in the research project described above. I have been given a copy of this consent form.

_____Date _____Parent's signature

(Participation of the child)

_____YES _____NO I do agree to allow my child to participate in this project

_____YES _____NO I do agree to allow video files and photos of my child to be used in this research.

_____YES _____NO I do agree to use photos and video clips that include my child at educational conferences.

_____YES _____NO I do agree to use photos for publication.

(Teacher-Parent conference)

_____YES _____NO I do agree to participate in this project.

_____YES _____NO I do agree to have the conversation with my child's teacher(s) audio-recorded for the purposes of transcription.

_____YES _____NO I do agree to use audio files at educational conferences.

If you have any questions about your rights as a research participant please contact Anne Robertson, Bureau of Educational Research, 217-333-3023, or ber-irb@ed.uiuc.edu or the Institutional Review Board at 217-333-2670 or irb@uiuc.edu.