TECHNOLOGY SUPPORTED PEDAGOGICAL DOCUMENTATION

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Dedication

Niente Senza Gioia!

(Nothing without joy!)

~ Loris Malaguzzi

Abstract

Finding sustainable ways to engage in the pedagogical documentation process can be challenging for many educators inspired by the Reggio Emilia philosophy. Reflecting on practice, collaborating with others, and intentionally considering and understanding children's work can often be time consuming and difficult. The barriers to this important work can lead to decreased motivation and interest in participating in the documentation process. This case study action research project followed a group of Reggio-inspired educators as they utilized social networking technologies to overcome the challenges of collaboration and sustainability within their practice. Through their collaborative efforts, case study participants identified perceived needs, explored the affordances of many social networking technologies, and discovered strategies that enabled them to engage with documentation, the fundamental principles of the Reggio Emilia philosophy, and each other.

Keywords: pedagogical documentation; collaborative analysis; social networking technologies; Reggio Emilia philosophy

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Chapter 1: Introduction

This project is a component of my personal learning journey and an extension of my professional work with educators and colleagues. It is deeply rooted in the Reggio Emilia philosophy and heavily influenced by educational technology. I am inspired by the work of educators in Reggio Emilia, Italy, and have spent the past fifteen years passionately studying and reflecting on the principles of that philosophy. I also have a strong interest in understanding how technology can create opportunities for connectivity, research, and collaboration within educational contexts. I believe that the Reggio Emilia philosophy embodies my personal vision and values about teaching and learning, and that technology is a crucial and emerging resource for those who are committed to the philosophy, and work alongside children every day.

In 1997, the Hundred Languages of Children exhibit from Reggio Emilia, Italy came to Calgary and inspired a life-long learning journey. Since then, I have been actively engaged in contextualizing the principles of the philosophy in my own teaching, and sharing my passion for the philosophy with others. In 2007, and then again in 2011, I joined a delegation of Canadian educators on a study tour to Reggio Emilia. These visits solidified my commitment and dedication to collaborating and sharing the values of this work with others. Throughout my career, I have been actively involved in teacher professional development, education, and leadership regarding the Reggio-inspired approach at the school, district, local, provincial, and national levels. This research project is a natural extension of my own learning and partnerships with other educators inspired by the philosophy.

Background

       The Reggio Emilia philosophy has been established and refined over the past 48 years through the hard work and dedication of educators in the municipal preschools and infant/toddler centres of Reggio Emilia, Italy. They have assembled their collective experiences to develop an educational culture which effectively integrates theory with practice. The Reggio Emilia philosophy is based on a number of tenets that support and guide the work of educators. These fundamental principles are interconnected and interdependent. Gandini (2008) outlines these fundamentals:

       The image of the child. All children have preparedness, potential, curiosity; they have interest in relationship, in constructing their own learning, and in negotiating with everything the environment brings to them. Children should be considered as active citizens with rights, as contributing members, with their families, of their local community. Children with special rights (rather than using the term special needs) have precedence in becoming part of an infant/toddler center or a preschool.

       Children's relationships and interactions within a system. Education has to focus on each child, not considered in isolation, but seen in relation with the family, with other children, with the teachers, with the environment of the school, with the community, and with the wider society. Each school is viewed as a system in which all these relationships, which are all interconnected and reciprocal, are activated and supported.

       The role of parents. Parents are an essential component of the program; a competent and active part of their children's learning experience. They are not

considered consumers but co-responsible partners. Their right to participation is expected and supported; it takes many forms, and can help ensure the welfare of all children in the program.

The role of space: amiable schools. The infant-toddler centers and preschools convey many messages, of which the most immediate is: this is a place where adults have thought about the quality and the instructive power of space. The lay-out of physical space fosters encounters, communication, and relationships. Children learn a great deal in exchanges and negotiations with their peers; therefore teachers organize spaces that support the engagement of small groups.

Teachers and children as partners in learning. A strong image of the child has to correspond to a strong image of the teacher. Teachers are not considered protective baby-sitters, teaching basic skills to children but rather they are seen as learners along with the children. They are supported, valued for their experience and their ideas, and seen as researchers. Cooperation at all levels in the schools is the powerful mode of working that makes possible the achievement of the complex goals that Reggio educators have set for themselves

Not a pre-set curriculum but a process of inviting and sustaining learning. Once teachers have prepared an environment rich in materials and possibilities, they observe and listen to the children in order to know how to proceed with their work. Teachers use the understanding they gain thereby to act as a resource for them. They ask questions and thus discover the children's ideas, hypotheses, and theories. They see learning not as a linear process but as a spiral progression and

consider themselves to be partners in this process of learning. After observing children in action, they compare, discuss, and interpret together with other teachers their observations, recorded in different ways, to leave traces of what has been observed. They use their interpretations and discussions to make choices that they share with the children.

The power of documentation. Transcriptions of children's remarks and discussions, photographs of their activity, and representations of their thinking and learning are traces that are carefully studied. These documents have several functions. The most important among them is to be tools for making hypotheses (to project) about the direction in which the work and experiences with the children will go. Once these documents are organized and displayed they help to make parents aware of their children's experience and maintain their involvement. They make it possible for teachers to understand the children better and to evaluate the teachers' own work, thus promoting their professional growth; they make children aware that their effort is valued; and furthermore, they create an archive that traces the history of the school.

The many languages of children. Atelierista and atelier. A teacher who is usually prepared in the visual arts (but also in other expressive arts) works closely with the other teachers and the children in every preprimary school and visits the infant-toddler centers. This teacher, who works in a special workshop or studio known as an "atelier", is called an "atelierista". The atelier contains a great variety of tools and resource materials, along with records of past projects and experiences. What is done with materials and media is not regarded as art per se,

because in the view of Reggio educators the children's use of many media is not a separate part of the curriculum but an inseparable, integral part of the whole cognitive/symbolic expression involved in the process of learning. Through time the materials and work of the "atelier" has entered into all the classrooms through the setting up of "mini-ateliers" and through the learning on the part of teachers and atelierista to work in very connected ways.

Projects. Projects provide the narrative and structure to the children's and teachers' learning experiences. They are based on the strong conviction that learning by doing is of great importance and that to discuss in groups and to revisit ideas and experiences is essential to gain better understanding and to learn. Projects may start either from a chance event, an idea or a problem posed by one or more children, or an experience initiated directly by teachers. They can last from a few days to several months. (pp. 24-27)

There are a wide variety of challenges and rewards to reflecting the values and principles of the Reggio Emilia philosophy in everyday practice. The most challenging tenet of this work is documentation. Pedagogical documentation involves the intentional observing, recording, collecting, and analysis of children's thinking and learning for the purpose of negotiating, guiding, and interpreting the work. It is also the act of making the learning visible to children, parents, colleagues, the community, and other stakeholders. Pedagogical documentation permeates every aspect of the philosophy. It is not only the process which guides and records the work of teachers and children, but also encompasses the materials, artifacts, voices, thoughts, and ideas which are gathered during this process. Dahlberg, Moss, and Pence (2007) describe pedagogical

documentation as consisting of two components: content and process. Content "is material which records what children are saying and doing . . . . This makes the pedagogical work concrete and visible (or audible), and as such it is an important ingredient for the process of pedagogical documentation" (p. 148). The process "involves the use of that material as a means to reflect upon the pedagogical work and to do so in a very rigorous, methodical and democratic way" (p. 148).

Observations as a Coach and Learning Leader

Through professional and volunteer commitments, the author has had the opportunity to collaborate and work with colleagues from a wide variety of contexts and settings. These opportunities have offered insights and observations about teacher practice, and the challenges and successes that educators and care-givers face on a daily basis as they aspire to engage with the principles of the Reggio Emilia philosophy. Through these observations, the author recognized reoccurring trends and themes. Among the trends that continually emerge from conversations and correspondence, are the feelings of isolation, and a lack of time to intentionally engage in Reggio-inspired practice. Many educators shared their struggles about working "differently" from their immediate colleagues who often used more traditional methods of teaching. These educators were not able to collaborate with colleagues and may have encountered resistance among administrators or parents who did not fully understand the philosophy. Others expressed challenges regarding the amount of time that they could dedicate to fully engage with Reggio-inspired principles such as pedagogical documentation. Their classes are often full of complex and diverse learners who demand and deserve extra

time. Due to these challenges, teachers have expressed a lack of desire to engage with the philosophy.

The author also observed educators who are actively engaged with the philosophy and passionate about their work with children. These educators tend to work with others who share the same philosophy and are willing to collaborate. They have also expressed a feeling of collegiality and support in their work environments, and have discovered sustainable ways to maintain their motivation and engagement with children and their work. It is these educators who have become the inspiration for this project. Understanding the factors that have created successful and sustainable dispositions for collaboration and engagement with Reggio-inspired principles will enable educators to overcome barriers and re-engage with their values and beliefs.

Rationale

Much of my professional work with colleagues has been spent identifying barriers and challenges to Reggio-inspired practice, and intentionally offering strategies and solutions to support teachers and mitigate these issues. These strategies are often grounded in technology, and have included software applications for documenting and displaying children's learning, mobile devices that offer the capability to capture and record audio and visual information, or social media which enables educators to connect and network with others. It was the next logical step to look to emerging technologies to find a solution to relieve the pressure of isolation and time on Reggio-inspired educators.

The vision for this project was to develop a case study by bringing together a group of like-minded educators whose passion for, and engagement with, the Reggio Emilia philosophy would invite and encourage innovative and new ways of approaching

collaboration and documentation. The intent was to have educators actively participate in pedagogical documentation, identify common challenges and barriers, and then collaboratively discover specific solutions to mitigate the issues and increase the ease and efficiency of collaborating and documenting children's learning. Throughout the project, the case study participants would be encouraged to explore secure social media options, such as learning management systems, wikis, blogs, Elluminate, or secure chat rooms for the purpose of collaboration, communication, and sharing.

The research objectives and guiding questions for this project were established through personal experience, professional dialogue with Reggio-inspired colleagues, and the synthesis of current research in the area of pedagogical documentation, collaboration, and emerging social networking technologies. This project attempted to find specific social networking technologies that would sustain and support networking, dialogue, and collaboration amongst a small group of educators engaged with pedagogical documentation.

Chapter 2: Literature Review

Introduction

The purpose of this literature review is to support the investigation within the research project and examine the relationship between the collaborative nature of Reggio-inspired pedagogical documentation process and the value of technology in supporting teacher reflective practice and collaboration. It will also act as a platform for the identification of barriers within the documentation process and serve as a guide to recognize the affordances that technology brings to collaborative environments.

Collaboration Within the Reggio Philosophy

The Reggio Emilia philosophy is rooted in the Italian culture and has developed into a world renowned educational philosophy since the municipal government of Reggio Emilia agreed to take over the parent-run schools. The philosophy is based on the collective study of scholars such as John Dewey, Jean Piaget, Lev Vygotsky, David Hawkins, Jerome Bruner, Howard Gardner, and Loris Malaguzzi, the founder of the philosophy (Gandini, 2012), as well as the experiences of children and educators within the schools. The fundamental principles of the philosophy are centred on the concepts of collaboration, social welfare, and relationships. To separate the principles from each other diminishes their value and the work on which those are based.

The sustainability of the philosophy within the Reggio schools is dependent on the collaborative work of the educators. Gandini (2012) reveals this practice in a recorded interview with the founder of the Reggio Emilia philosophy, Loris Malaguzzi. He was asked, "In your schools there seems to be no hierarchy among teachers. Is this really the case?" (p. 47). His response was that "co-teaching, and in a more general sense, collegial work, represents for us a deliberate break from the traditional professional and cultural solitude and isolation of teachers" (p. 47-48). Malaguzzi also recalls how initially teachers were asked to work in pairs. This created anxiety, but they "soon discovered the evident advantages, and this cleared up the uncertainty. The work in pairs, and then among pairs, produced tremendous advantages both educationally and psychologically, for adults as well as for children" (p. 48). Reggio Emilia schools are unique in that they do not have site-based administration. Rather, a team of adults collectively make decisions and develop the curriculum for the school. This team consists of teachers,

parents, cooks, cleaning and maintenance staff, an atelierista or art studio teacher, and a pedagogista or curriculum and pedagogy specialist. All of whom have an equal voice in the decision-making and pedagogical process (Fu, Stremmel, & Hill, 2002, p. 19).

The collective belief that all children are competent and capable is the shared vision and focus of all staff who work in the preschools and infant/toddler centres in Reggio (Edwards, 2012, p.150). There is a strong sense of community and trust that supports the high level of collaboration and communication which forms the foundation of their pedagogical practice. Teachers are allocated time to discuss pedagogy, plan with colleagues, guide professional development, and engage in reflective inquiry (Edwards, 2012, p. 148-149).

The importance of collaboration within pedagogical documentation. In order to understand the importance of collaboration within the pedagogical documentation process, one must first understand its role within the philosophy. In traditional educational environments, formative assessment guides the practice of teachers and the learning of students. Pedagogical documentation responds, and is received, in similar ways within a Reggio-inspired setting.

Forman and Fyfe (2012) suggest that documentation serves a number of purposes within a Reggio-inspired classroom, including making children's work visible, listening to children's theories and ideas, negotiating children's learning, and guiding pedagogy within teaching practice (p. 250). All aspects of an educator's practice can be guided by the documentation of children. Pedagogical decisions, planned learning activities, art materials, and artifacts brought into the classrooms are intentionally considered and informed by documentation. Dahlberg, Moss, and Pence (2007) suggest that an educator

who is engaged in pedagogical documentation is "a reflective practitioner who, together with his or her colleagues, can create a space for a vivid and critical discussion about pedagogical practice and the conditions that it needs" (p. 144). Kinney and Wharton (2008) explain the value of pedagogical documentation within their Reggio-inspired setting:

> We have experienced some breathtaking moments when another element of a child's capability as an individual or within a group has been revealed, and the educators themselves have been stopped in their tracks at times when they have learned and understood something further about themselves which has taken them to another place in their thinking and practice. (p. xiii)

Documentation is a collaborative endeavour that involves teachers, children, parents and the community, and is built around the value of relationships. Gandini and Goldhaber (2001) suggest that "collaboration among teachers, among teachers and the children, and among the children themselves leads to deeper understanding and richer, more meaningful relationships" (p. 138). It can also become a unifying foundation "to support discourse, the reflective talk of people who are studying each other's perspectives and interpretation with the aim of co-constructing shared understanding" (Fyfe, Geismar-Ryan & Strange, 2000, p. 9).

Collaborative analysis is an essential component in the pedagogical documentation process; one that requires time, patience, and other perspectives. To make sense of the artifacts and data collected, and determine a course of action, practitioners need to analyze the observations and artifacts collected. Gandini and Edwards (2001) highly regard this phase of the documentation process and state that "this is one of the

aspects of documentation that is most constructive. Through this reflective practice, educators experience continuous professional development along with the pleasure of cooperating and learning together" (p. 128). Fyfe (2012) adds that "it gives each teaching team a common platform for thinking together about learning, for drawing on multiple perspectives to enrich the possible interpretations" (p. 282). Fu, Stremmel, and Hill (2002) note that "providing spaces for collaborative teaching or collaborative dialogue is an integral part of the Reggio Emilia approach" (p. 170).

Many educators throughout North America have engaged in building networks or collaboratives to engage in professional dialogue and inquiry. These groups include the St. Louis-Reggio Collaborative described by Fyfe, Geismar-Ryan and Strange (2000), and the Reggio Inspired Vermont Education Team (RIVET) featured by Goldhaber (2007). RIVET was created after participating in a study tour to Reggio Emilia with the intention of becoming a network of educators. For RIVET members:

> Meetings were an opportunity to think out loud; to reflect on the meaning of the children's gestures, words, and actions; to consider a multitude of perspective; to visit and re-visit the meaning and practice of a social constructivist perspective; to share challenges; and to celebrate accomplishments. (Goldhaber, 2007, p. 77-78)

Other collaboratives have been formed to bring like-minded educators together and build a sense of collegiality. Fu, Stremmel, and Hill (2002) suggest that "when teachers collaborate with one another, hearts and minds open for rich conversations and intellectual challenges" (p. 171).

Sustainability of collaborative analysis. Within the collaborative analysis phase of pedagogical documentation, challenges exist. Some of these challenges have been

documented in Reggio-related literature and speak to the difficulty of implementing the Reggio philosophy in contexts outside of Italy. These identified barriers are often linked to isolation within one's context, and time constraints imposed by school or district priorities.

    Isolation. Without collaboration, the important aspects of pedagogical documentation within a Reggio-inspired setting cannot be truly honoured. These collaborative aspects include the analysis of observations and artifacts, and the projection of a learning sequence or activity. Gandini and Goldhaber (2001) suggest that documentation "is seen as the interpretation of close, keen observation and attentive listening, gathered with a variety of tools by educators aware of contributing their different points of view" (p. 125). An educator who works independently within a context can struggle to determine the importance and relevance of what is being observed. Tarr and Fraser (2002) suggests that:

> In-depth documentation shows how essential it is for teachers to collaborate with each other. Teachers soon discover that they cannot create the panels on their own because everyone has seen something different happening and everyone has a different perspective about what the children are learning. (p. 19)

One of the purposes of collaboration is to value other perspectives or perceptions which can bring depth or richness to the work. This idea of perspective is integral to the documentation cycle, as it enables analysis and pedagogical discourse to occur. The barriers of isolation, and lack of opportunities to collaborate with other like-minded professionals, can make this process daunting, or for some, unattainable. Many Reggio-inspired educators encounter isolation within their own schools, districts, or cities. Tarr

and Fraser (2002) describe this phenomenon within the Canadian context and draw the analogy of "newly sprouted trees, each locally adapted as single seedlings or small groves, sending out roots, still shallow, fragile and isolated but taking hold" (p. 16).

Time. Utilizing time efficiently and effectively to engage in the collection, reflection, and analysis of raw documentation can be extremely difficult to begin and sustain over time. Finding the time to organize artifacts, meet with colleagues, share a sequence of learning, deconstruct the observations, and determine a potential course of action or response takes a significant amount of time and effort. Haigh (2007) identifies the "cost in time", as a challenge to "reflective, contextual-based professional development" (p. 62), and suggests that if time were "more readily available", then the "quality of teaching and learning would improve" (p. 62).

Educators who engage in Reggio-inspired documentation recognize the need to prioritize their time. Kroeger and Cardy (2006) concur and suggest:

As teachers reevaluate time and think through the purposes of documenting, their vision of openings for learning broadens; and they become more willing to create and trust the co-constructed, investigative and evolving moments as starting, middle, and ending places for understanding the children they teach and with whom they learn. (p. 397)

In a study conducted in New Westminster, British Columbia, it was noted that "the teachers identified constraints related to the difficulty of finding time to collaborate" as well as "allotting time to observe, create and display the children's learning" (MacDonald, 2006, p. 239). The study conducted by MacDonald (2006) also concluded

that the lack of time was attributed to "busy schedules filled with classroom and school-related duties" (p. 239).

   Sustainability of practice. There are many challenges to the sustainability of collaboration and documentation with Reggio-inspired classrooms. Educators are often faced with difficult choices when collaboration competes with personal and professional obligations. In order to overcome these challenges, a disposition for documentation must be present. Kocher's (2004) study of three master practitioners focused on the dispositions required to sustain pedagogical documentation practice. These dispositions made it possible for documentation to become "the cornerstone of her pedagogical work with children", and have a "high level of intellectual engagement" (p. 27). It was also noted that each of the three practitioners identified as "being a comfortable writer" and had "worked hard to effectively develop systems where collegiality and collaboration support relationships among the children, educators, parents, and community, opportunities for learning and the co-construction of knowledge" (p. 28). These dispositions enabled these practitioners to sustain their work with children and overcome the barriers of documentation.

Technological Supports for Teacher Practice

   Just as Kroeger and Cardy (2006) identified multiple forms of documentation, their affordances and their limitations, (p. 394-5) when capturing raw documentation, it is as important to consider technological supports when entering the final phase of the documentation cycle. The sustainability of the reflective, analytical, and interpretive practice depends on the ease of use and accessibility of these supports. Technology can provide multiple affordances, or limitations to the process but it is imperative that the

practitioner make informed decisions about their use. Educators must choose the type of technological supports that mesh with personal preferences and pedagogy, as well as their availability and ease of use.

Potential solutions and strategies to alleviate these issues have emerged through the use of technological supports. These supports, if intentionally considered and thoughtfully used, can create sustainable strategies for reflective practice and collaborative analysis, and minimize challenges around time, isolation, and collaboration.

Girod and Cavanaugh (2001) consider the impact of technology on teaching and learning and suggest:

> Considering how technology can radically change what we do as teachers pushes our thinking to new levels and challenges us to reorganize, reinvent and rebuild our pedagogical practices, routine and thinking in ways that reflect the changing technological and sociological climate in which our children are learning. (p. 40)

This notion that teachers will use technology to radically change their practice may only hold true for some. However, it is important to recognize that some do not embrace technology as readily as others. This variable will have a direct and binding effect on the technologies employed by the participants of this research project. Girod and Cavanaugh (2001) conclude in saying that "technology is not the key to radical change—teachers are the key" (p. 44). In order to address the issue of technological comfort and ease, McKenzie (2002) reminds us that "one learns by doing and exploring . . . by trying, by failing, by changing and adapting strategies, and by overcoming obstacles after many trials. One learns by teaming—sharing failures and successes as well as tricks and

techniques that work" (p. 38). It is crucial to encourage participants to explore within their own timelines and collaborate with one another.

Mitchell (2007) describes how technology could be utilized in a Reggio-inspired program and identifies documentation, communication, and training as three areas which have the most promise (pp. 37-38). Mitchell (2007) suggests the following technologies for each of these three areas: (1) Digital media for the capture and sharing of children's work through documentation. (2) Video conferencing and live video streaming for collaborative communication. (3) Digital media as well as telecommunication for teacher training (pp. 37-38). Hong and Trepanier-Street (2004) concur with this finding and add that technology can successfully facilitate "discussion, sharing, and collaboration among the children, their families, and teachers" (p. 93).

Collaborative analysis through technology. Social networking applications can support those Reggio-inspired educators who may feel isolated in their own contexts and want to network with others. These networking possibilities may include chat rooms, blogs, and wikis, and can be used to support reflection and collaborative inquiry. Ray and Coulter (2008) considered the use of blogs for teacher reflection and concluded that they "provide a way for teachers not only to analyze their own practice, but also to share their reflections with others" (p. 20). They also demonstrated that "blogs have the power to assist teachers in creating authentic communities of practice extending far beyond any individual teacher's classroom or experience" (p. 20).

An empirical study done by Hew and Hara (2007) provides a number of recommendations and conclusions for collaborative and online knowledge sharing. These recommendations included building "deeper social ties among members through face-to-

face socializations", developing "guidelines or ground rules to handle misunderstandings", as well as encouraging teachers to "convey that they are genuinely interested in making us of the knowledge sought" (p. 592). Hew and Hara (2007) also concluded that "a listserv can provide a possible means for practicing teachers to share their knowledge" and "help other teachers solve problems" (p. 593).

Conclusion

There are many possibilities and opportunities that emerge when technology is utilized effectively and efficiently for collaboration and reflection. It is important to first understand the importance of pedagogical documentation, as well as the value of collaborative analysis within its practice, so that engagement through social networking technologies can best support this very important work.

Chapter 3: Methodology

An action research case study methodology was chosen for this project. This model provided a strong but flexible framework from which case study participants could actively collaborate. The action research methodology was also used as it closely mirrors the cycle of documentation used by Reggio-inspired educators as they moved through the pedagogical documentation process.

The phases of the project were purposely designed to directly relate to an action research model and the cycle of pedagogical documentation (see Appendix A). Table 1 illustrates and relates the project phases to Townsend's action research model outlined in the Alberta Teachers' Association's (2000) *Action Research Guide for Alberta Teachers* (p. 14-15) and the cycle of documentation model offered by Gandini and Pope Edwards (2001) in *Bambini: The Italian Approach to Infant/Toddler Care*.

Table 1

Action Research and Cycle of Documentation Comparison

Project Phase	Action Research Model	Cycle of Documentation
Planning	1. Define the Focus 2. Collect Information 3. Make Sense of the Information	1. Framing questions
Engagement	4. Share the Information 5. Plan Action 6. Take Action 7. Collect Information	2. Observing, recording, and collecting artifacts 3. Organizing observations and artifacts
Analysis	8. Analyze 9. Assess Your Achievements 10. Publish	4. Analyzing observations and artifacts; Building theories 5. Reframing questions
Conclusions and Recommendations	11. Future Action	6. Planning, projecting and responding

The case study aspect of this methodology allowed the cause and effect dynamic of the participants' experiences to be recorded and monitored throughout the project. The participants were able to engage in pedagogical documentation and collaboration while investigating a variety of emerging technologies. This allowed them to determine the medium that best suited the group, and also the pace of the project itself. The majority of this work was done in the engagement phase of the action research process.

Chapter 4: Action Research Process

The action research framework for the project was reduced to four phases, as was outlined in Table 1, and included planning, engagement, analysis, and recommendation phases. Each of the phases provided opportunities for data collection. The initial or planning phase focused on gathering participants for the case study, developing research

questions, as well as designing research instruments for each phase of the project. The engagement phase offered case study participants the opportunity to cycle through their own research process and make decisions based on the results of their work. Through the engagement phase, case study participants were able to establish the benefits of collaborative analysis, recognize the barriers that stood in their way, develop a list of perceived needs, identify the affordances of social networking technologies, and find applications that fit their needs. The analysis phase of the project brought the case study findings together with the data collected throughout the action research process. This information was then used to address the framing questions and provide recommendations in the final phase of the project.

Planning Phase

The planning portion of the project was utilized to recruit research participants for the case study, build research instruments that would record and collect the necessary data, and develop the framing questions for the project.

Research participants. Research participants were recruited through a local non-profit organization called the Calgary Reggio Network Association, which provides professional development and networking opportunities to anyone interested in the Reggio Emilia philosophy throughout Western Canada. The invitation for participation in this project was sent to all members of the network. In order to narrow the focus and scope of the project, a number of parameters were established. These participant parameters included current employment with a particular local school district, self-identification as actively engaged in Reggio-inspired pedagogical documentation practice, willingness to explore emerging technologies, and a strong desire to collaborate

with other participants. Participants were also offered opportunities to network and receive support from colleagues, and to build competency in both collaborative technologies and pedagogical documentation practice through this research study.

Fourteen elementary school teachers fit the parameters of the study, were made aware of the ethics of the study and consented to participate in the project. These educators came from diverse school contexts and backgrounds, with varying levels of experience with the philosophy and the pedagogical documentation process. Eight of the participants stated that they had been inspired by the Reggio Emilia philosophy for the last four to nine years. Two participants indicated that they had ten or more years of experience teaching using the Reggio approach, while four indicated less than four years. The participants also indicated their level of understanding of the Reggio Emilia philosophy, with two indicating that they felt confident with their understanding, and integrated the principles into their practice. Eleven of the participants stated that they have just begun to use the fundamental principles in their own practice, while three other participants indicated that they understood and knew the basic principles of the philosophy. Participants also shared their level of experience with pedagogical documentation which was based on the continuum outlined by research done by Edwards, Churchill, Gabriel, Heaton, Jones-Branch, Marvin, and Rupiper (2007, p. 6). Three participants indicated that they were novices, seven indicated that they were at an apprentice level, and three indicated that they were above the apprentice level and moving towards being fully engaged as a practitioner.

Data collection. Three research instruments were used to capture data and anecdotally record the participants' conversations and interactions. These included a pre

and post questionnaire, digital voice recordings and online threaded discussions. To protect the anonymity and privacy of the participants, each participants signed a consent form to have their thoughts, ideas and voices recorded, and agreed to not distribute or share artifacts outside of the project.

Questionnaire. The pre and post questionnaires were administered prior to any internal contact within the group, and after the project had concluded. These questionnaires can be found in Appendices B and C. Both the pre and post questionnaires captured a range of data regarding the Reggio Emilia philosophy, pedagogical documentation, collaboration, and emerging technologies. The initial questionnaire collected data that established a baseline. Participants were asked about their level of exposure to, and understanding of, the Reggio Emilia philosophy, as well as their experience with the pedagogical documentation process. They were also asked about how frequently they collaborated with others, what barriers stood in their way, and their comfort level and use of social networking technologies. The post questionnaire provided data that determined whether there were any changes in these same areas after participating in the project.

Audio recordings and transcripts. The second research instrument used within the project was digital audio recordings and transcripts. All of the face-to-face meetings were audio recorded to document the discussions, dialogues, and decisions made collaboratively by case study participants. These discussions often set the tone and the direction for the group between online meetings and guided their work together. Some of the digital recordings were transcribed at the end of the project to provide evidence of collaboration, and support the identification of emerging social networking technologies.

The audio recordings and transcriptions also revealed the successes and barriers that arose throughout the duration of the study.

Online threaded discussions. The third research instrument used for the project was an online threaded discussion transcription. The transcriptions were the text conversations held within an online forum. These threaded discussions were typed directly into the forum, and used synchronously to engage in real time dialogue. Those were also used asynchronously to share information within the group over the course of time. There was great value in these transcriptions because those conservations were recorded and archived.

Framing questions. Through professional observation, research, and experience, two questions were developed for this project. Specific factors such as the project's scope and focus, the number of participants anticipated, and time parameters were considered in the development of these questions. The questions used in the project were:

- How can emerging (social networking) technologies be used to support teacher reflection and collaborative analysis within the pedagogical documentation process?

- What emerging (social networking) technology most significantly impacts the sustainability of pedagogical documentation in teacher practice? Why?

Engagement Phase

The engagement phase of the project encompassed the work of the case study participants, as well as all of the data collection for the project. The engagement phase was divided into three segments to coincide with the research instruments used, case study participant interaction, and a set end date.

Segments. The initial segment of the project occurred prior to participant interaction and involved the pre-project questionnaire. Once participants completed the consent form to participate in the research project, they were provided with a web link to an online questionnaire. The questionnaire captured demographic information, level of experience, and participant opinions regarding the framing questions for the project.

The secondary segment of the project involved the full participation and interactions of all the case study participants through face-to-face and online meetings. Data collection for the secondary segment was done through voice recordings, observations, and online threaded discussion records. There were three face-to-face meetings and weekly online meetings held throughout the four months of the project. The project began with two face-to-face meetings. During the second face-to-face meeting, participants explored and interacted with a few social networking technologies and chose one to begin their work. Once the case study group moved to an online forum for their meetings, online threaded discussion data was captured and archived. This enabled the group's processes to be documented for the action research project, but also used to inform members of the group who were unable to log in and participate in every meeting. A third face-to-face meeting was scheduled with the intent of sharing technological tools used to engage in pedagogical documentation. Participants agreed to continue using the same application to meet online once per week. A final online meeting date was established by participants to coincide with the end date of the project.

The final segment of the project occurred after the conclusion of the case study and involved a post-project questionnaire. The intent of the final segment of the project was to provide a concluding activity that would measure participant growth and

development using the same questionnaire provided at the beginning of the project. This questionnaire recorded the participant's responses to the same questions and captured their perceptions and understandings about the benefits and challenges of utilizing social media for the collaborative analysis. The questionnaire also acted as a reflective tool for participants who were able to reflect on their experiences and gauge their level of growth and professional development within the project.

Establishing purpose. The engagement phase began with each participant stating their experience levels and intentions through a pre-project questionnaire and initial discussions with the other case study participants. These two data sources established their personal rationale and suitability for joining the project and engaging in collaborative analysis within the pedagogical documentation process.

Questionnaire. The questionnaire revealed that of the fourteen participants, nine had more than four years of experience with the Reggio Emilia philosophy and were established in their practice. Ten participants indicated that they were actively engaged in pedagogical documentation in some form, but only half of those participants were collecting evidence and artifacts on a daily basis. The remaining participants were collecting data less frequently, or only during special projects or occasions. The questionnaire also indicated that participants felt that making children's work visible, guiding pedagogy, and intentionally listening to children's theories and ideas were the main purpose for documentation in their contexts. Participants also stated that they rarely, or only occasionally, gathered with colleagues to collaboratively analyze documentation. The questionnaire also helped to establish each participant's level of comfort and utilization of secured (password protected) social networking technologies such as

D2L (Desire2Learn), VoiceThread, Blogger, Elluminate, and Skype. The majority of the group stated that they were somewhat, or very comfortable with these technologies, but only one member of the group indicated that they used technology to collaborate with colleagues on a daily basis. The majority of the group also indicated that they rarely used these technologies to collaborate, even though almost all of the participants indicated that they were most familiar with D2L, a learning management system used and supported by the district.

   Initial introductions. The initial face-to-face meeting was offered to establish group norms and initiate relationships within the case study group prior to engaging in an online format. During the initial meeting, participants introduced themselves, shared the context of their work environments, and engaged in a dialogue about the opportunities the project could create for the group. Participants were also asked to share what they were hoping to achieve and their reasons for joining the group, as well as their opinions on the importance of collaboration and connecting through technology. During these initial discussions, a few participants revealed that they worked in an isolated Reggio-inspired classroom setting within a team of teachers that "had a more traditional approach to teaching and learning". Others indicated that they were supported by colleagues, parents, and administration when engaging with the Reggio philosophy, but expressed that they "did not have time during the day to collaborate" with colleagues. Many of the participants indicated that they were interested in participating in the research project because they wanted to have "other eyes, other voices to see something that was missing", or "a group to help make sense of it (the documentation)". Another participant indicated that they wanted to move "from reflective documentation to more generative,

where you document the work as you go". Many of the participants agreed that they appreciated opportunities "to connect with other Reggio-inspired teachers" and were "very excited to be working with everyone in the research group".

Establishing direction. Over the first month of the project, the case study group established a direction for their work through dialogue and discussions about the benefits and barriers of collaborative analysis of documentation, the affordances of technology, and what they felt they needed in order to engage with each other in an effective and efficient manner online.

During the initial face-to-face meeting, the group discussed possible technologies that could support the work of the group. The first suggestion was D2L, a collaborative learning management tool sanctioned by the district. It was secure and could easily be accessed by all participants. The majority of the group had used D2L before, however, two participants indicated that they were not actively using D2L in their teaching practice and would consider it to be "new learning for them". This prompted a discussion about the barriers and benefits of D2L. Among the challenges suggested were "file size issues – especially for photos and videos", as the district had imposed a limit on the size of the storage areas within the tool, and others indicated that uploading files and organizing them efficiently and "making things easy to find" might make it "unsustainable for a large group with administrative privileges". Despite these issues, the group indicated that they felt it was a good "place to post questions or curiosities", or that it might "bring us together on our own time" and allow anyone to "get immediate responses to questions".

Other technologies brought forward during the initial meeting included Elluminate, which one member of the group had used during a recent online distance

education course, and Blogger, which "could live forever" and be accessed by the group in the future. Some concerns were raised about the security and access to Blogger, as it was not a resource approved by the district for use in schools. VoiceThread was also demonstrated by one member of the group, as the rest of the group had never seen or heard of it before. The group was keen to learn, but did raise concerns about possible public access to the group's documentation and photos of children when using VoiceThread.

At the end of the meeting, the group decided that they would spend time accessing the various technologies brought forward, and would attempt to seek out other viable options. They also agreed to open a new D2L course shell in which only the participants would be enrolled and would be able to communicate and post ideas, articles, and links for each other. Lastly, they decided to meet again in person to bring forward possible technologies that would support online collaboration and sharing of digital artifacts from their classrooms.

The second face-to-face meeting was held about three weeks later with the intention of sharing ideas and exploring a variety of technologies. Participants brought forward new suggestions for the group to explore. These included Google Docs, which offered storage space and the ability for the group to modify, change, and build documentation presentations collaboratively, and Campfire, which was essentially an online chat room. Campfire offered a secure way for the group to chat and collaborate with each other in real-time, had a simple method to upload files to share, and provided access to archived records of each conversation. The group spent a considerable amount of time exploring the Campfire chat room option during the second meeting. The group

divided, and logged in as a different users. Conversations were started, new chat rooms were established, and several documents were uploaded and downloaded to test the ease of use. The group was pleased to see how easy it was to log in from both Mac and PC computers and noted that there were iPhone and iPad applications available for mobile users. They felt that the upload and download times were reasonable and were impressed that any file format appeared to be easily accessed by users from the chat room window.

Based on the success of the exploration session, the group decided to meet online once a week on Monday evenings using Campfire as the tool of choice. They felt that they would be able commit to a once a week online meeting, and attempt to use the chat room format as a way to connect and share with each other.

Meeting format and continuum. The Campfire online application was chosen by the group, as it offered participants a variety of features that enabled them to communicate effectively and efficiently. The Campfire chat room format allowed participants to interact and use it as a pedagogical documentation idea clearinghouse. Documentation and pertinent information were freely exchanged within the Campfire format. It was also an opportunity for those who did not have experience with a particular software application, or type of hardware, to learn and ask questions of those who had wisdom or advice. Each member of the group engaged in a dialogic relationship that validated each participant, their experience, and knowledge.

The online meetings lasted between one and two hours, causing some participants to note that the time seemed to "zip by". It also appeared that a critical sense of trust and safety had been quickly established within the group, as a number of participants began to share their personal documentation within the first few meetings.

Participants did not have a set agenda of matters or things to discuss during the online meetings, but rather let the dialogue dictate the direction and course of the discussion. The dialogue evolved as participants discussed a variety of different topics that often referenced different software applications and hardware used to engage in the process of pedagogical documentation. Many participants shared their experiences about how, and what they used, to capture, record, and make children's learning visible to parents, colleagues, and children. Others offered suggestions and tips to those who posed specific questions.

Participants who posted their documentation would often create their own rooms, post files for others to see, and anticipate feedback. The intention of this practice was to share the finished documentation as an example for others, but also to receive critical feedback from colleagues about their work. Participants became critical friends, curious observers, and coaches for their colleagues. Questions posed by participants promoted thinking, encouraged dialogue, and allowed everyone to engage in professional learning. One participant likened the experience to that of a "professional learning community" because children's work was at the centre of the discussion.

Many participants indicated an interest in engaging in a parallel literature study as another collaborative aspect of the project. After the second online meeting, a special reading room was created within the Campfire application where participants could post links and abstracts to articles for recommended reading. Participants could access the reading room at any time, as the posts were archived. Several article links about documentation were posted for participants to read at their leisure.

In the second month of the project, a two week district-defined school break occurred. The participants collectively decided not to engage with each other during the break period and agreed to re-establish their online meeting commitment after the break had ended. The meetings resumed, but participant attendance became more sporadic and the purpose or focus of the meetings was not always clearly defined. Participants continued to offer their work for critique, but the continuity between meetings was not evident. It was decided that another face-to-face meeting was warranted to bring participants back together to reconnect and share technologies that could not be efficiently demonstrated through the Campfire application.

The third face-to-face meeting was attended by nine members of the case study group. Participants took turns sharing software tricks and tips and providing mini-tutorials about ePortfolio, iMovie, Jing, and Pages. Participants appreciated the face-to-face format and commented that "it's great to be able to see how others were using technology in their classrooms".

Over the remaining month of the project, online meeting attendance continued to decline. This decline was mainly due to family obligations, statutory holidays, and forgetfulness on the part of participants. Meetings reminders that had been sent out before each meeting were no longer being sent to participants in the final month. A core group of five to seven participants sustained the discussion and dialogue for the remainder of the project, however there was no set agenda for any of the meetings. The final few meetings appeared to lack the same energy and enthusiasm as they had in the past when the dialogue flowed effortlessly from subject to subject.

A reminder about the final meeting was sent to all participants encouraging their participation and opinions. Only seven participants logged into the Campfire application to share their thoughts and views about the project and engage in continued dialogue. A number of questions were posed to participants addressing issues of sustainability, attendance, focus, and purpose. These questions offered participants a platform from which they could discuss the benefits and challenges encountered throughout the project. It also presented an opportunity for participants to suggest possible solutions or recommendations for others who may engage in this form of collaborative work in the future.

Those who logged in for the final meeting were also members of the core group who had remained consistent throughout the entire project. These participants had attended each meeting and sustained the dialogue over the course of the project. They commented that they appreciated being "a part of a community of learners" and having the "opportunity to share with like-minded colleagues". They also expressed a great interest in continuing to network with each other after the research project concluded. The consensus of the participants in the final meeting was that there were obvious challenges to meeting online, but that the benefits helped them overcome these issues. Many stated that it had been "worthy of their time and effort".

Analysis Phase

The analysis phase of the action research process considers the rationale for the project, builds understanding through careful consideration of the data collected and the processes involved, and attempts to answer the framing questions for the work.

Rationale for collaborative analysis. Through this project, participants generated a strong rationale for engaging in the collaborative analysis of raw documentation. This project validated the importance of engaging in the pedagogical documentation process with other colleagues. Through their interactions and dialogue, participants determined that collaborative analysis offered an opportunity to "problem solve", engage in innovative and "critical thinking", "deepen our understanding" of children's learning, invite "risk taking" and "inspiration", and "improve teaching practice". They also felt that "different points of views", or "perspectives", contribute to "community and professional connections to build pedagogy and skills" and support "growth and change in teacher practices".

Barriers to collaborative analysis. In the engagement phase of the project, participants identified the barriers that stand in the way of collaborative analysis. They suggested that the "lack of time is always a barrier", and that devoting time to the process was difficult, especially "during the school day". They also noted that finding "like-minded people with similar schedules", feeling "isolated" in a school setting or not having "administrative support" created barriers to engaging with others. Participants also added that being "forthcoming with sharing and taking the risk of putting your work in the mix for discussion" or "feeling judged" in a group can also be a challenge to collaborating with others. Over the course of the project, the group identified three main barriers to collaborative work. They were time, access to others, and ease of communication.

Building criteria. Case study participants were eager to address and overcome three main barriers that they encountered during the project and prior to working with

each other. They identified what their needs were in regards to each challenge, in the

hopes of building criteria for success. These perceived needs were directly related to each

barrier and could be matched with a particular affordance of an existing online social

networking technology. Many of the participants had worked with a variety of

applications prior to joining the project, and quickly recognized common features that

would assist them in mitigating the challenges. These features are outlined in Table 2,

and are directly related to the barriers identified by the participants.

Table 2

Matching Perceived Needs to Technological Affordances

Barrier	Perceived Need	Affordances of the Technology
Time	• Flexible usage • Anytime access	• Asynchronous/Synchronous use • 24/7 accessibility
Networking	• Access to like-minded colleagues • Connection to others	• Multi-device compatibility • Multi-user capability
Communication	• Ease of access • Ease of communication • Secure • Ability to share ideas and artifacts	• Online, web-based application • Real-time chat and archive capability • Password protected • File storage for up/down loading

Time constraints. Participants felt that they never had enough time to engage with

others during the school day, as student, school, or district priorities often took precedent

over professional engagement with others. Participants wanted their collaborative time to

be more flexible. They wanted to be able to post questions or provide answers or

feedback when they had the opportunity during the school day. They also wanted to be

able to have real-time discussions when it was convenient for them, such as outside

school hours in the morning or in the evening. They identified that they needed the ability to have synchronous and asynchronous opportunities to collaborate with colleagues. Participants felt that if they could access colleagues or feedback at any time of the day or evening, they may be more successful in overcoming the time "crunch" and able to increase the sustainability of this practice.

Networking struggles. Case study participants identified that networking and locating others to engage in the documentation process was a significant barrier to their work. Finding other Reggio-inspired educators who were willing to collaborate and worked within the same school, community, or district was very challenging. They noted that it was often difficult to involve school colleagues who did not engage in the pedagogical documentation process themselves or were not willing to learn more or expand their practice. Participants also noted that their most pressing need was finding like-minded individuals to collaborate with and accessing networks that already existed. Participants felt that having a social networking technology that could be accessible on any type of computer or mobile device would encourage others to use it, and possibly encourage the construction of collaborative environments. They also suggested that having a social networking application that would enable a group of 15 - 20 people to interface, would allow for multiple perspectives and points of view, as well as sustain the conversation and collaboration over time. Participants indicated that they felt that groups larger than 20 would make conversation challenging and dialogue difficult to follow.

Communication difficulties. Participants indicated that ineffective and inefficient methods of communication and sharing can be a significant challenge to the collaborative analysis process. Engaging in pedagogical documentation requires practitioners to collect

raw documentation which often consists of photos, transcribed conversations, artifacts of learning, and video evidence. This raw documentation is usually in some type of digital format. Participants indicated that ease of access within a social networking application was a definite need when overcoming communication challenges. Those practitioners who may not be familiar or comfortable with technology need to be able to access fellow collaborators easily and intuitively. Project participants also noted that security and the type of communication used were very important. The ability for collaborators to interact easily with each other, or access prior posts or messages, enables communication to occur in real time or whenever is convenient. The Freedom of Information and Privacy regulations require that communication and sharing of children's photos, video, and other work be done in a secure and safe manner. This requires the technology to be password protected and secure.

Research findings. The case study participants carefully considered a number of social networking technologies that would support their collaborative work together and determined that the Campfire online application met most of the criteria that they had identified (http://campfirenow.com/). Participants recognized that although there were similar applications available, or would be developed in the future, this particular application best suited their needs and criteria at the time. Participants clearly expressed that the most important aspect of their initial work together was identifying their needs, setting a criteria, and matching it with an appropriate social networking technology.

Participants established that the Campfire application included the features, capabilities, and affordances that would enable them to create a sustainable and collaborative environment for their work. The Campfire application met the majority of

the needs of the group, and offered an effective and efficient strategy for sharing and collaborating. Table 3 illustrates the features of the Campfire application as it compared to the criteria developed by the group.

Table 3

Features of Campfire Application Based on Criteria

Criteria	Features of Campfire Application
Synchronous use	Real time sharing of text and files with large numbers of people
Asynchronous Capability	Saves transcripts
Flexible access	Accessible at anytime
Ease of Access	Online application requires only a web browser and internet connection
Security	Password protected and SSL security
Ability to share and store files	Quick upload and storage for documents and files including audio and video
Ease of communication	Simple text typing communication. No webcams or microphones required.
Inexpensive	$25/month for 3 GB of storage and up to 25 "chatters". Free for up to 4 "chatters"

Through their collaborative efforts, case study participants identified a social networking technology that met their needs and supported their work. It was the designated technology used for all online meetings. At the final online meeting and on the post-project questionnaire, participants discussed and shared their thoughts and opinions about their successes and the benefits reaped from their work together. They also identified new challenges that were encountered throughout the project. Many participants also offered strategies that may assist others in mitigating these issues in the future.

Identified benefits. The results of the post-project questionnaire indicated that the participants gained from their experiences and engagements over the course of the project. Participants felt that they not only had grown in their understanding of pedagogical documentation, but also increased their level of use within their own practice. Many indicated that they were feeling more confident in their approach to documentation and were spending more time collaborating with others and analyzing documentation due to their participation in the project. Case study participants also noted that their comfort level with technology had increased and that they were more willing to explore new technologies independently since working with colleagues who shared their expertise and knowledge.

At the final online meeting, case study participants were asked to share their thoughts and opinions about the project. Those who attended the final meeting were regular contributors to the conversation, and actively shared their work online throughout the project. One participant indicated that they appreciated interacting and networking with others in an environment "where everyone was here for the same purpose – to learn about documentation and share with others their experiences and expertise, as well as their questions". Another participant shared that they "liked being given a chance to purposefully discuss the learning in our classrooms". Another participant noted that they valued the "opportunity to share with like-minded colleagues". Participants also commented that they appreciated how "open and welcoming" the experience felt and one mentioned that "this forum and group was exactly what I needed this year. It was interesting to learn how documentation 'plays out' in a variety of settings. When I had a question, I always appreciated the feedback". Many participants also suggested that they

"didn't feel pressured" to participate. One participant remarked that though they missed a meeting, "I didn't feel like I was letting anyone down".

Case study participants also observed that they didn't mind the typed communication format. One participant stated that "using my voice or webcam wouldn't have made a big difference". Another remarked that the typed archived conversation allowed them to "look back on missed meetings" and was "much easier than listening to it recorded". They also noted that the typed conversations were "easier to skim and jot notes".

Other benefits discussed included the ability to access the conversation, articles, and resources anywhere, at any time. During one of the online meetings, a participant did not have access to a computer, and decided to use their smartphone to engage in the dialogue. Another participant commented that it was nice to "be at home and join in the conversation". Many participants also observed that they felt more inspired because they were "learning new things", had "a purpose for sharing", or it caused them to "stop and take the time to reflect and apply new strategies and applications to my own work". Access to articles about documentation caused one participant to share that they "personally loved the articles and used them to support some teachers at my school."

Identified challenges. Although three main barriers were identified, and technological strategies were implemented to minimize that impact, the case study group did experience other challenges to their collaborative work. These challenges affected the frequency and attendance of online meetings, and the ability to display and share large documentation panels effectively.

The initial intention of the case study group was to meet online every Monday evening. However, a number of factors created periodic scheduling problems over the duration of the project. The scheduling issues began after the first three weeks of the project, as a district-wide break caused participants to suspend meetings for two weeks. Meeting frequency was also an issue through the final month of the project, as a statutory holiday and school responsibilities, such as report cards and parent conferences, became priorities for participants.

School responsibilities and personal commitments had a direct impact on the attendance for the online meetings. Attendance after the district break decreased, leaving a core group of seven to nine members to continue collaborating and sharing. One participant remarked that "meeting less often might be more manageable". Another noted that they would be interested in continuing to meet, but were not sure if they "would be online every week". In the final month of the project, weekly email reminders were not sent out. Some participants noted that without the reminders, they often forgot to log in and join the conversation. Others commented during the final face-to-face meeting, that it would be "nice for each meeting to have a focus" or subject, while others thought that the randomness was of benefit to the group and allowed "the conversation to move in any direction". These issues prompted another participant to note that "sustainability depends on an organizer or 'leader' to some extent".

Participants also commented that "not being able to accurately portray documentation panels through technology" made them "hard to explain". This was especially true for those who were attempting to share photos of documentation posted on large school bulletin boards. Photographs were not able to capture the details within the

panels, and therefore, made it difficult for participants to comment on the overall presentation of the children's work. Others suggested that raw documentation, which often consists of simple text, photos, or short audio or video segments, can "take longer to discuss" and analyze through an online environment.

Conclusions and Recommendations Phase

The intention of this research project was to discover strategies to utilize social networking technologies and enable educators to collaborate and engage in the pedagogical documentation process. Through observations and a literature review, it was determined that a lack of engagement and motivation existed among many Reggio-inspired practitioners using pedagogical documentation to guide their practice. Two questions were generated to conduct the research project: 1. How can emerging (social networking) technologies be used to support teacher reflection and collaborative analysis within the pedagogical documentation process? 2. What emerging (social networking) technology most significantly impacts the sustainability of pedagogical documentation in teacher practice and why?

Through an initial questionnaire and discussions among case study participants, it was discovered that many of the motivation and engagement concerns were created and influenced by feelings of isolation, time constraints, and communication difficulties. Participants of the research project attempted to find strategies to overcome common issues that impacted their current and future collaborative work. Participants identified their perceived needs, regarding the ability to collaborate and share documentation with colleagues, and created criteria for success. The participants also examined the affordances of several social networking technologies, and matched them with the

criteria, in order to determine what application would best suit their needs. Data was collected throughout the project based on the experiences and perceptions of the case study group. This data was then used to determine the final conclusions and address the research questions.

Conclusions. A number of discoveries were made as participants interacted with each other utilizing technology as a tool for collaboration and communication. In matching their needs to the affordances of particular social networking technologies, participants were able to engage with each other effectively and efficiently. These discoveries increased the level of engagement with pedagogical documentation, and motivated participants to contribute in online meetings. The participants noted that there was improvement in their ability to network with others, feel less pressure around time, and engage in professional dialogue which was supportive and collaborative.

Connection relieves isolation. Participants indicated that they felt a sense of connection within the networked group, which relieved the isolation that some felt prior to engaging in the project. Technology enabled those who were located at different schools within the district to connect with one another without driving considerable distances to meet on a regular basis. Participants knew that they could access others without face-to-face contact at any time to receive the support and feedback that they often were unable to access within their own contexts.

Flexible use of time addresses time constraints. The social networking application used by participants enabled them to access colleagues, feedback, resources, and inspiration on their own time. Participants were able to join regular weekly meetings synchronously, or access archived conversations, feedback, and materials

asynchronously. Many participants indicated that before the project, they did not engage in collaborative analysis of documentation during the school day, as there was not enough time. The ability to interact and share with others online enabled participants to overcome time constraints and engage when it was convenient.

Communication builds a culture of support. Ease of communication through a social networking application enabled participants to engage with each other, share their experiences and knowledge, and build a culture of support. Participants were able to ask questions, dialogue, and discuss issues in a safe environment that was built on mutual respect and trust. This culture of support was established and encouraged continuous engagement, accountability, and sustainability in a short amount of time. This culture of support was initiated through two face-to-face meetings that enabled participants to understand each other's contexts and practice. It is also recognized that participants were not coerced or forced to join the group, allowing sustainability through genuine interest and engagement.

Emerging technologies such as the social networking applications used in this research project facilitate networks which enable practitioners to collaboratively engage with others. The dialogical environment created within these applications is dynamic, flexible, and secure, allowing for pragmatic interchanges to exist. The ease of use, access, and communication within these applications offers opportunities to analyze and share raw documentation easily and efficiently, without the necessity of travel.

Based on the experiences and opinions of the case study participants, criteria for an effective collaborative networking application were developed. These criteria

consisted of six different affordances that supported collaboration, reflection, and sustainability of practice.

1. Synchronous and asynchronous use – It is of critical importance that a social networking application used for collaboration, have the capability to enable practitioners to interact synchronously, or asynchronously, at any time. This capability allows practitioners to communicate with others in real-time, or offline, when it is convenient or they have the time.

2. Ease of access – Social networking applications that can be accessed through any platform or device, and do not require software downloading, are the most ideal applications for collaborative use. Applications that are difficult to access create barriers that prohibit use and decrease the likelihood of sustainability.

3. Security – Practitioners of pedagogical documentation who intend to share raw documentation with others, require a secure and password protected application to meet Freedom of Information and Privacy (FOIP) regulations. Social networking applications that enable files such as photos and videos to be publicly accessed do not comply with FOIP regulations and cannot be used for collaborative purposes.

4. Ability to share and store digital files – In order for practitioners to analyze raw documentation; they must be able to share digital files. These files usually include photographs, or audio/video footage which can be large in size. It is essential that a social networking application used for collaborative analysis include easy uploading capability and relatively large storage capacity.

5. Ease of communication – Communication is the keystone to any collaborative work. An application which enables users to communicate through simple and easy methods

is ideal. Communication that does not require external hardware, such as webcams and microphones, often eliminates technological issues from interfering and creating new barriers.

6. Low cost – Cost effectiveness is a definite consideration when attempting to bring together large groups of people to interact and share. Collaborative networking applications need to be reasonably priced, or free, in order to encourage their use and eliminate perceived barriers.

There are a number of different applications available to practitioners that fit the above criteria. These applications will most definitely become more accessible, and easier to use, as the technology improves. For the purposes of this project, Campfire, an online social networking technology using a chat room format, was established and utilized by participants.

Recommendations. The intention of this research project was to find simple and easy solutions to overcome the barriers that confront practitioners as they engage in the pedagogical documentation process. Through the work of fourteen case study participants, five recommendations can be made to support others in their collaborative efforts.

1. Administrator and/or Facilitator – In order to maintain and sustain a collaborative environment, it is recommended that an administrator and/or facilitator be appointed. The role of an administrator would be to manage the social networking technology and trouble shoot technical issues as they arise. The facilitator position could be rotated between members with the role of providing reminders prior to meetings, ensuring that a focus or topic has been determined, and maintaining group norms.

These roles, however, should be collectively determined and monitored. During the research project, there was no defined facilitator role. Conversations were dynamic, but at times appeared to lack focus or direction unless a particular participant was sharing documentation and eliciting feedback.

2. Group norms – As with any social networking technology, rules of conduct and appropriateness need to be established. It is recommended that before meeting regularly, each member of the collaborative share their context and define their purpose for joining. This practice enables the group to build trust and develop norms that will guide the work and provide a common understanding for communication within the group. Research participants quickly established a culture of safety and security through this process. Setting group norms increases the likelihood of sustainability over time.

3. Disposition for collaboration – Moderating social network technologies can be difficult, as issues around exclusivity and favoritism can become contentious issues. It is critical, however, to ensure that members have a genuine interest in participating and working with other like-minded educators. This disposition for collaborating and sharing is vital to the viability and sustainability of the group. When people do not fully commit to the work, or are coerced, or forced to participate, they can become disinterested or unwilling to engage in positive or meaningful ways. Those who have a disposition for collaboration often demonstrate commitment to the work, and therefore, increase the likelihood for sustainability.

4. Access to resources – Social networking applications that do not offer file storage or archive capability impede the collaborative analysis process. The cycle of

pedagogical documentation is a form of action research which requires access to outside perspectives and resources. It is important that members of the collaborative have the capability of sharing their work and the work of others, which may or may not include professional reading, inspiring projects, or other documentation.

5. Set predictable meeting times – To sustain collaborative efforts, it is imperative that meetings are consistently scheduled. Having meetings occur at the same time, and at regular intervals, makes them predictable for all members. Those who are not able to commit to every meeting still know when the next meeting will occur and can join in without prejudice. Regularly scheduled meetings also remove the pressure or stigma attached to missing a meeting due to other commitments or illness. Those who cannot attend may have the ability, depending on the application used, to read, listen, or view archived conversations or other meeting records. Research participants frequently accessed meeting archives if they were unable to attend, so that they felt informed when attending the next meeting.

This project speaks to the power of the collaborative effort and the importance of working with others. Together, a small group of educators took the time to come together, and devote one evening per week to each other. They problem solved, learned new things, inspired each other, became critical friends, discussed issues, and engaged in the documentation process. This project truly demonstrated that educators can utilize technology to support professional development and build collaborations that are meaningful, productive, and sustainable.

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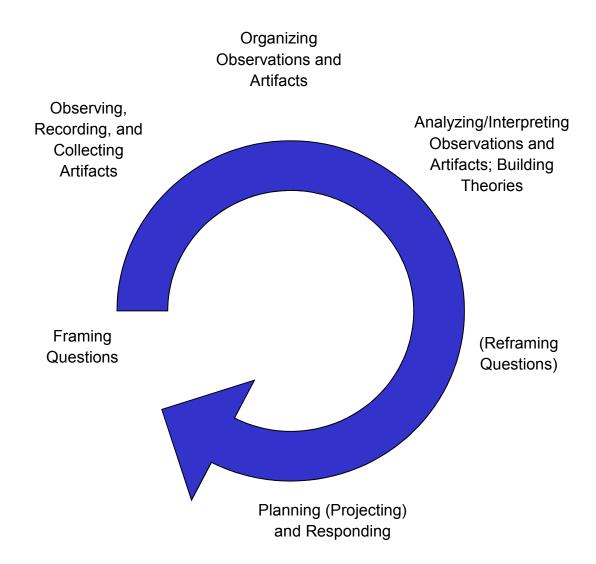Fyfe, B., Geismar-Ryan, L., & Strange, J. (2000). The potential of collaborative inquiry.

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Appendix A

The Documentation Process as a Cycle of Inquiry

Organizing
Observations and
Artifacts

Observing,
Recording, and
Collecting
Artifacts

Analyzing/Interpreting
Observations and
Artifacts; Building
Theories

Framing
Questions

(Reframing
Questions)

Planning (Projecting)
and Responding

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Infant/Toddler Care 10, 136.

Appendix B

Pre-Project Questionnaire

Part 1: Demographics

1. Please complete the following:
   Name
   Phone Number

2. What is your chosen pseudonym?

Part 2: Reggio Emilia philosophy

3. How long have you been inspired by the Reggio Emilia philosophy?
   0 - 1 year
   2 - 3 years
   4 - 9 years
   10+ years

4. What would you consider to be your level of understanding of the Reggio Emilia philosophy?
   Recently introduced
   Understand and know the basic fundamental principles
   Have begun to put the fundamental principles into my own practice
   Feel confident and integrate the fundamental principles in my own practice

5. Where would you say you are on a pedagogical documentation continuum?
   (1) Novice (just learning about)
   (2) Somewhere between novice and apprentice
   (3) Apprentice (experimenting with)
   (4) Somewhere between apprentice and practitioner
   (5) Practitioner (fully integrating it)

6. How often do you actively engage in observing and collecting evidence of children's learning and thinking for the purpose of pedagogical documentation?
   Never
   Only during projects or other special occasions
   Once per month
   Every few weeks
   Once per week
   2 – 3 times per week
   Daily

7. What is your main purpose for observing and collecting evidence (raw documentation)?

> Assessment and evaluation
> Making children's work visible
> Guiding pedagogy and teaching practice
> Intentionally listening to children's theories and ideas
> Other (please specify)

8. How often do you collaborate and actively engage with colleagues to analyze the raw documentation you have collected?

> Never
> Rarely
> Occasionally
> Often
> Always

9. In your opinion, what are some of the benefits of engaging in the collaborative analysis of raw documentation?

10. In your opinion, what are some of the barriers to engaging in the collaborative analysis of raw documentation?

Part 3: Secure Social Networking Technologies

11. What is your level of comfort in using secured (password protected) social networking technologies (D2L, VoiceThread, Blogger, Elluminate, Skype, etc.)?

> Very uncomfortable
> Somewhat uncomfortable
> Neutral
> Somewhat comfortable
> Very comfortable

12. How often do you utilize secured social networking technologies (D2L, VoiceThread, Blogger, Elluminate, Skype, etc.) to collaborate with colleagues and analyze raw documentation?

> Never
> Only during projects or other special occasions
> Once per month
> Every few weeks
> Once per week
> 2 – 3 times per week
> Daily

13. What secured social networking technology do you use most to collaborate?
>D2L (Desire2Learn)
>Moodle
>VoiceThread
>Vimeo
>Blogger
>Elluminate
>Skype
>Wikispaces
>Other (please specify)

14. In your opinion, what would you say are some of the benefits of using collaborative technologies for the purpose of pedagogical documentation?

15. In your opinion, what would you say are some of the barriers to using collaborative technologies for the purposes of pedagogical documentation?

Appendix C

Post-Project Questionnaire

Part 1: Demographics

1. Please complete the following:
    Name
    Phone Number

Part 2: Reggio Emilia philosophy

2. What would you consider to be your level of understanding of the Reggio Emilia philosophy since participating in the research?
    Recently introduced
    Understand and know the basic fundamental principles
    Have begun to put the fundamental principles into my own practice
    Feel confident and integrate the fundamental principles in my own practice

3. Where would you say you are on a pedagogical documentation continuum since participating in the research?
    (1) Novice (just learning about)
    (2) Somewhere between novice and apprentice
    (3) Apprentice (experimenting with)
    (4) Somewhere between apprentice and practitioner
    (5) Practitioner (fully integrating it)

4. How often do you actively engage in observing and collecting evidence of children's learning and thinking for the purpose of pedagogical documentation since participating in the research?
    Never
    Only during projects or other special occasions
    Once per month
    Every few weeks
    Once per week
    2 – 3 times per week
    Daily

5. What is your main purpose for observing and collecting evidence (raw documentation) since participating in the research?
    Assessment and evaluation
    Making children's work visible
    Guiding pedagogy and teaching practice
    Intentionally listening to children's theories and ideas
    Other (please specify)

6. How often do you collaborate and actively engage with colleagues to analyze the raw documentation you have collected since participating in the research?
   Never
   Rarely
   Occasionally
   Often
   Always

7. In your opinion, what are some of the benefits of engaging in the collaborative analysis of raw documentation since participating in the research?

8. In your opinion, what are some of the barriers to engaging in the collaborative analysis of raw documentation since participating in the research?

Part 3: Secure Social Networking Technologies

9. What is your level of comfort in using secured (password protected) social networking technologies (D2L, VoiceThread, Blogger, Elluminate, Skype, etc.) since participating in the research?
   Very uncomfortable
   Somewhat uncomfortable
   Neutral
   Somewhat comfortable
   Very comfortable

10. How often do you utilize secured social networking technologies (D2L, VoiceThread, Blogger, Elluminate, Skype, etc.) to collaborate with colleagues and analyze raw documentation since participating in the research?
    Never
    Only during projects or other special occasions
    Once per month
    Every few weeks
    Once per week
    2 – 3 times per week
    Daily

11. What secured social networking technology do you use most to collaborate since participating in the research?

> D2L (Desire2Learn)
> Moodle
> VoiceThread
> Vimeo
> Blogger
> Elluminate
> Skype
> Wikispaces
> Other (please specify)

12. In your opinion, what would you say are some of the benefits of using collaborative technologies for the purpose of pedagogical documentation since participating in the research?

13. In your opinion, what would you say are some of the barriers to using collaborative technologies for the purposes of pedagogical documentation since participating in the research?