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Established  
February 27, 1999  
ISSN 1524-5039

...a peer-reviewed multilingual journal on the development, care, and education of young children

Current Issue:  
Volume 13 Number 2

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Volume 13 Number 2

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## Learning to Document in Reggio-inspired Education

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### Abstract

This article discusses how teachers in child care and elementary schools learn to work with Reggio-inspired pedagogical documentation. While teachers grasp the value of such documentation theoretically, it is most challenging but exciting to use in practical settings. Documentation illuminates teacher theories about children's understanding: watching such theories change through study of documentation and further teacher research profoundly influences professional development. This article outlines five aspects in a progression in learning to document: (1) developing the habits of documenting, (2) "going public" with recountings of activities, (3) exploring the visual literacy of graphic displays, (4) making children's theories visible, and (5) sharing visible theories with others for the purpose of further interpretation and curriculum decision making. Two stories of teachers learning to document are shared—one showing a teacher's attempt to make one child's theory visible and one showing a teacher's "documentation strips" developed for revisiting theories with children.

### Introduction

The Reggio Emilia approach to early childhood education was developed in the municipal system of 46 infant-toddler centers and preschools for children birth to age 6 in the city of Reggio Emilia in northern Italy. The approach has attracted worldwide attention for its rich and vibrant image of children, teachers, and families in relation to society (Cadwell, 1997, 2003; Edwards, Gandini, & Forman, 1998; Fleet, Patterson, & Robertson, 2006).

The Reggio educators' conception of documentation as combining many forms of texts to make learning visible is highly respected and considered a major contribution to the early childhood field (Burrington & Sortino, 2004; Giudici, Rinaldi, & Krechevsky, 2001; Katz & Chard, 1996; Malaguzzi, 1996); it appeals to students of the Reggio approach and can be grasped intellectually. Yet, in our experience, when teachers outside of Reggio attempt such documentation in their own classrooms, they find it much more challenging than they had expected, which suggests how radically different the Reggio notions of documentation are from those often found in schools and child care settings in North America.

To use the term Reggio-inspired regarding early childhood programs is to recognize that one does not "implement" or use the approach as a "model to copy" (a modernist position that reflects an inaccurate view of reality). Rather, educators outside of Reggio explore and re-interpret—for their own contexts and through their own understandings—a number of processes for which Reggio offers useful reference points.

### Documentation as Teacher Research

Reggio educators use the term "documentation"; in the North American context, it is helpful to distinguish documentation concerned with teacher research from the myriad other forms of documentation in our society—

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from cash register receipts to family snapshots, from legal documents to the results of standardized testing. Educators in several English-language-dominant countries are experimenting with such documentation and with terms to adequately describe it, such as “learning story” in New Zealand and “pedagogical narration” in British Columbia in Canada (Berger, 2008). Both “learning story” and “pedagogical narration” imply a storyline or plot in a learning process, countering the notion of learning as a transmission to the learner for testing. In this article, the term pedagogical documentation, introduced by Dahlberg, Moss, and Pence (1999), is used in order to differentiate a form of documentation that attempts to “make learning visible.” The term keeps intact the notion of the educator’s *study* of learning in order to figure out how to teach. Pedagogical documentation is treated here simultaneously as teacher research into children’s thoughts and feelings and as a design process for invention of curriculum in a specific context.

Pedagogical documentation is the teacher’s story of the movement of children’s understanding. The concept of learning in motion helps teachers, families, and policy makers grasp the idea that learning is provisional and dynamic; it may appear to expand and contract, rise, and even disappear. If we were to think of learning as being like a river, capable of flooding and of drying up, or like clouds, massing up and dispersing, we might have an apt metaphor for the ways our minds and bodies work.

Pedagogical documentation is a research story, built upon a question or inquiry “owned by” the teachers, children, or others, about the learning of children. It reflects a disposition of not presuming to know, and of asking how the learning occurs, rather than assuming—as in transmission models of learning—that learning occurred because teaching occurred. With standardized curriculum, once teaching has occurred, there is a tendency to assume that learning may be tested. Thus pedagogical documentation is a counterfoil to the positioning of the teacher as all-knowing judge of learning.

I avoid the terms assess and assessment here because they imply a range of meanings that I hope to distance from pedagogical documentation—accountability and the judgment of learning. To judge is to remove oneself from participation. If the teacher is removed from relationship to and responsibility for the learning, it becomes solely the learner’s responsibility. The learner who has not learned is then considered to be in jeopardy and a failure. To view the child learner as a failure is, in my view, unethical, violating the rights of children to have a safe learning environment.

Conceptualizing pedagogical documentation as teacher research calls upon the teacher not to know with certainty but instead to wonder, to inquire with grace into some temporary state of mind and feeling in children. Pedagogical documentation entails what Heshusius (1994) calls “participatory consciousness” (reminding us of the long history behind the term). It invites teachers to inquire, to listen closely. It is a relational encounter that requires emotional as well as intellectual empathy: “Can we understand without judgment what these children are thinking? Can we show them what we think they are thinking and let them alter it?”

The interpretation of pedagogical documentation as a research method is linked with the tradition of ethnographic research in education that began to flourish in the 1970s (e.g., Best, 1983; Erickson, 1986), a tradition that borrows qualitative research methods from sociology and anthropology (e.g., Spradley, 1980, 1979; Lewis, 1961), building analysis and interpretation upon the “thick description” (Geertz, 1973) of observational data from field notes and interviews and visual material (artifacts and images). The tradition of using visual data reaches back to (and beyond) the work of anthropologists such as Margaret Mead (1972) and Gregory Bateson in the 1930s. Educators in Reggio Emilia may or may not have been aware of these intellectual traditions, but scholars elsewhere may recognize the connection between pedagogical documentation and ethnographic research traditions in education.

## Documentation as a Design Process

Carla Rinaldi, president of Reggio Children, an organization for international outreach, describes documentation as “traces” of learning (in Wien, 1997) and as “visible listening” (Rinaldi, 2001, 2006). We interpret these ideas as meaning close attunement of the adults to what children do and to ways that they as teachers might use visual methods to communicate with others about the thoughts, feelings, values, and culture of the children with whom they work.

If documentation is a design process, its purpose is first to make learning visible, which allows for collaborative discussion and interpretation with others to generate new “designs” for further learning and experience. The design of what to do next in one’s practice arises from the discussion and interpretation of the documentation; in this way, pedagogical documentation contributes to an emergent curriculum (Wien, 2008).

How is documentation also a design process? To design documentation is to create a representation that theorizes or imagines how learning might be. Reggio classroom pedagogy is closely linked with graphic design processes, from the children’s observational drawings of real things in the city—such as fountains, piazzas, loggias, and pillars—to sketches and models that they make based on their ideas for similar structures. The children work out their ideas through their engagement with a variety of materials—clay, wire, light, shadow—that enable expression in different “languages of learning.” Examples include the paper and clay prototypes for working waterwheels for *An Amusement Park for Birds* (Forman & Gandini, 1994). Reggio educators also

routinely use computer programs and other scaffolding devices that enable the children to alter scale (by projecting an image onto a wall, for example).

Graphic design principles and processes are important to pedagogical documentation, along with an understanding of visual literacy—how the human eye reads images and how people interpret those images. Also helpful is awareness of the ways that combining text and image, or text and audio, or video and still image can convey information effectively. A grasp of how digital technologies can be used in visual design may also be applied to documentation.

The teachers' designing of documentation is closely linked to design work done by the children, whose theories and provisional explanations for how something works or occurs (a fax machine, a human dancing, birth and death) are made visible in their own work and in the teachers' pedagogical documentation. The documentation creates a representation of children's learning—the development of their imagined theories and their movement between fantasy and what they understand to be reality. A parallel process goes on for the teachers who create the documentation in an effort to understand and represent the children's theories and the ways these theories may shift back and forth between playful fantasy and reality. In making this movement visible, adults may also see into their own theories, or lack of them, regarding the ways things work. (How many adults have ever thought about how a fax machine works? If we did, wouldn't our ideas be pretty fantastical and partial, reflecting the limits of our technical knowledge?) Thus through pedagogical documentation, teachers may come to understand some limitations of adult thinking and become open to the fact that many of their own theories are unproven and sometimes ridiculous; their grasp of reality is tenuous, always negotiated and hypothesized—reality only partially understood.

Witnessing the progression of children's thought and feeling while at the same time becoming aware of the limits of adult knowledge can widen teachers' understanding, sensitize their emotional response to children's learning processes, and deepen their sense of affiliation with young learners. The twin processes of teacher research and creative design permit such insight. In pedagogical documentation, teachers imagine or theorize understanding, present evidence of what they think they see, and check it against others' analysis and interpretation, all of which can inform their decisions about what to offer children, thus influencing the design of curriculum.

## A Progression in Teacher Understanding of Pedagogical Documentation

This section addresses five features that we have observed of a progression in teachers' processes of learning to create pedagogical documentation with the Reggio Emilia approach as their inspiration. I am indebted to Deborah Halls for the idea of a progression in learning, rather than stages. Stages are invariant—a person must pass through one to reach the next, as in babbling before talking. Understanding how to create pedagogical documentation is a more flexible, more varied process, though in our experience very few teachers begin their documentation at sophisticated levels.

The notion of a progression is based on a decade of conversations, dialogue, and reflections with teachers in both elementary and child care settings. "We" is used here to signify the involvement of all those with whom I have shared these ideas and who have commented and reflected on them. The names of these teachers are used with their permission; all children's names mentioned are pseudonyms.

Five typical aspects of the progression toward sophisticated pedagogical documentation are shared here. First, I will define the terms *data* and *theory* as used in this discussion. Data (or the singular form, datum) are lived experiences (verbal or in action) that are recorded in some fashion and thus can be manipulated in an instrument that represents them separately from the stream of experience. A written field note about a child crumbling a cracker while whispering "snow" lifts that action from real life, processes it through the observers' own thought and feeling, and preserves it on paper, separating from life an interpretation of what was seen. The term theory here refers to a system of imagined possibilities, the mind's wondering freely in a playful way to consider multiple ideas and present a coherent system of relations. A theory has an internal logic, regardless of its relationship to reality.

We have observed five aspects of teachers' progression toward pedagogical documentation as teacher research and design for learning:

1. developing habits of documenting,
2. becoming comfortable with going public with recountings of activities,
3. developing visual literacy skills,
4. conceptualizing a purpose of documentation as making learning visible, and
5. sharing visible theories with others for interpretation and further design of curriculum.

Often when teachers begin pedagogical documentation, they cannot see beyond the first three aspects. Then a pivot point occurs (Wien, 1995) at which they do grasp that there is something more—they catch glimmers—but cannot produce it yet in their documentation. They suffer, as all learners suffer, as they attempt to learn a new language and literacy. Each of these five aspects of the process of learning to document is described in

the following sections.

## Habits of Documenting

No matter how much reading a teacher has done about the Reggio Emilia approach, or how strong her intellectual grasp of documentation, the first aspect of the progression will be to develop habits of documenting. For the teacher, that means gathering various tools for classroom use, learning to have the tool she needs at hand when she wants to use it, and developing the mental habit of thinking to document. Teachers may need months to get beyond intending to document but finding they do not have the tools at hand—the camera is forgotten at home or the IC recorder is lost on a cluttered desk—so the teacher must carry on without it.

Habits of documenting also include becoming aware of the potential that moments of classroom action may have for yielding something meaningful about learning. North American society has strong habits of documenting for legal and technical reasons (e.g., notations about medication or behavioral incidents), and educators have strong habits of observing children in early childhood education via anecdotal or running records. Teachers may be accustomed to noting a significant moment—taking a photo of a child's first block tower or recording two children's conversation at the water table about making bubbles "to infinity"—but experience suggests that they are less accustomed to having a sustained, focused commitment to documenting the processes of learning, which is what Reggio-inspired documentation requires.

Teachers may not initially have an automatic habit of documentation in various forms, related to their thinking and reflection about curriculum and children's learning, or see it as a purposeful activity that can help guide their decision making. For decisions about curriculum, they are more accustomed to following curriculum documents and learning standards, with supports provided by school districts, center programs, and funding agencies. Documentation can initially feel like an "add-on," and teachers may feel they cannot find time to do it.

Understanding the intellectual purposes of documentation is difficult for teachers when they have not yet developed habits of documenting and are still frustrated by not remembering to document. Dawn Szolopiak, for example, a preschool classroom teacher in a Reggio-inspired community college program, told me her goal for the year was to get used to using the tools of documentation—to have camera and tape recorder at hand, to consciously record small group conversations, and to generate documentation and commit to examining what she generated. I thought this a most reasonable goal; a year seemed a sensible amount of time in which to lay a foundation of documentation as a habit. With any complex literacy, beginners have to build one layer at a time into their functioning. At one point, Dawn covered an entire wall, about 8 x12 feet, outside her room with documentation of the children's interest in tulips—layers of tiled transcripts of conversation about where tulips should be planted and how they should be protected from the lawnmower (a stick fence woven with brightly colored wool), photos of children digging and planting, drawings of tulips growing or not growing. There was so much on the wall that it was unreadable to the viewer, but it was *Dawn's* data. She knew it backwards and forwards. She "owned" it; it was the successful product of her effort to develop the habits of documenting. It could be considered raw data, not yet in a form that could be readily shared with others. Dawn told me some time later that for several years she drew material from this wall of data to construct more finished panels or to communicate with another group of children.

Dawn's experience is typical of teachers developing the habit of documenting—a tendency to document too much in an unfocused way and to be overwhelmed with masses of data. The data may be largely uninterpretable to an outsider, but the teacher who has created the documentation sees it as her own, and to her, it represents something different from mainstream teaching.

If a teacher goes no further than developing the habit of documenting, however, she may have little sense of what documentation is for and why she does it, though she may delight in the process, enjoy sharing images and transcripts (perhaps haphazardly) with parents and children, and note children's interest in the documentation of what they have said and done.

Why create seemingly purposeless documentation before more focused documentation? It is only once the teacher has collected some data that she can begin to think about it—one cannot think in a vacuum.

## Recountings: First Steps in Going Public

Recountings of classroom experiences are likely to be the first stories of learning that a teacher creates when beginning to document. The first documentation attempted at Peter Green Hall in Halifax, Nova Scotia, in the mid-1990s, for example, showed children making pumpkin soup. Images showed children cutting the pumpkin, adding it to the soup pot, stirring, and eating soup. The captions said things like, "Here we are making pumpkin soup."

As the habits of documenting develop, the first accounts tend to be descriptive, showing the surface of events. Lesley Valentine, a teacher and graduate student, calls this "making *doing* visible." Lesley comments that one aspect of learning to document is growing comfortable with putting the activity of children and teachers on

display for others: "This aspect is also one where you allow yourself to become comfortable with putting your work with children, and the children's work, on display."

In Lesley's view, being willing to "go on display" is a necessary step toward being able to document more thoughtfully. To make the work visible to others means that others have thoughts and responses to the work—unpredictable and uncontrollable responses that would not occur if it were invisible. By displaying documentation, the teacher creates a mirror, and mirrors can startle people. The teacher's visibility to others may itself be startling initially, for as Krupnick (personal communication, 1989) noted long ago during a graduate course class discussion, teaching is public work done in isolation. Documentation removes the teacher's professional isolation and carries her work out into the community.

### **Developing Visual Literacy in the Familiar Culture of Bulletin Boards**

First attempts at documentation generally reflect the visual culture of a teacher's context. Many teachers are accustomed to decorative frames around bulletin boards purchased from education supply houses; or bright colored backgrounds of construction paper; or stickers, magnets, cut-outs, or other features that they consider appealing. If a teacher's center or school is accustomed to such displays, her documentation will likely have the same visual sensibility. These elements have nothing to do with the documentation, yet it may take time for a teacher to see that they clutter the message that she might wish to communicate. With bright colors, multiple images, and much text, the result may appear messy and muddled, but a teacher may love it because it is hers and done the way she knows.

In Western culture, the most sophisticated and effective visual design often occurs in advertising. People may see this sophistication constantly yet remain unaware of how to plan visual graphics to be read effectively by others. The teacher who is learning to document may have yet to develop an understanding of visual literacy and how the human eye reads images. Teachers' first documentation often makes no use of white space around the edges of visuals, reflecting a lack of understanding of how the eye focuses. The teacher may also have yet to develop an understanding of the way that text and image, or text and audio, or video and still image interact to create something more communicative than is possible with use of a single medium (Garrett-Petts & Lawrence, 1996; Moran & Tegano, 2005).

### **Making Learning Visible: From Recounting Activity to Conceptualizing Purpose**

If Reggio-inspired pedagogical documentation is teacher research—inquiry into children's understanding for the purpose of considering what to teach, what to learn, how to facilitate curriculum—none of the three aspects of the teacher's progression mentioned thus far is at the heart of it. Nonetheless, teachers must be allowed to be beginners at documentation, to take time with the first aspects of the progression, and to approach the process in ways that connect to their own practices. They can begin only at their own beginning points, tolerating them and understanding that these first steps take them toward something that they don't yet know how to do but that lead to their own knowing. Teachers' first attempts will bear a close resemblance to what they already know; they cannot see further possibilities until they have permitted themselves some steps into the terrain.

Pedagogical documentation is a route for teaching teachers, for professional development. Whose learning is made visible in documentation? The children's, of course. Yet in the spaces at the edges of pedagogical documentation is evidence of the teacher's thinking. The first task of the teacher educator, then, is to encourage teachers to try documentation, to recognize their first attempts as beginnings, placeholders of sorts, and to have an acute sense of timing about when to support teachers in seeing that there is much more with which they can engage—to enjoy, study, interpret, plan, and carry forward—that will make teaching unbelievably exciting.

The following example shows how one teacher made the tremendous leap in understanding from the three beginning aspects discussed above to making explicit children's theories about their world so they could be studied and interpreted.

Preschool teacher Victoria Guyevskey (2005) documented a project in emergent curriculum for her master's thesis while working with 3- to 5-year-olds in a child care setting where ideas from Reggio were being explored. The children had become enchanted with animals of the African plains—lions, cheetahs, zebras, and monkeys. Victoria, with equal excitement, documented children's play, recorded their conversations as they drew, and set up in the hallway an expanding gallery of documentation that showed the children's activity. Viewers could see data from a child's visit to the Toronto zoo with a report on cheetahs; the children's plasticene figures of lions, tigers, and monkeys; and photos of children creating a reconstruction of a wildlife habitat.

One of Victoria's posters was bright orange, the four corners cut off at angles to form a plaque shape (see Figure 1). It was titled "Wild Rumpus" and included some 15 photographs, several text passages from the children's conversations, and magnetic stickers of animals placed here and there.



Figure 1. Poster of "Wild Rumpus."

Knowing Victoria to be an open-minded student able to look beyond her current thinking, I asked if she would like me to "read" the document to show her what an outsider saw. I told her where my eye was drawn—to the angled corners, the large title—and how my eyes wandered around the photo images a little dizzily, drawn off by the magnetic animal figures. From the clearly stated title positioned in the middle and the many photos of children in animal costumes, I thought it was about children pretending to be wild animals, making lots of noise and crawling around. "No, no, don't you see?" said Victoria. "It's about Michael. He thinks monkeys are stronger than lions, and during their play he understood they aren't!"

She told me how several boys argued for days over whether lions or monkeys were stronger, with Michael insisting monkeys were stronger. Just before the episode displayed on the poster, the children had watched a videotape of animals. Halfway through the video, they began to crawl, roar, and pretend to be animals, at which point Victoria invited them to continue their play with animal costumes she had prepared in a room close by. Michael chose a monkey. The children in the lion costumes chased him, and as they closed in around him, he became puzzled. When one boy removed his lion costume, Michael quickly put it on. As she told the story, Victoria pointed to a photo of Michael surrounded by "lions" and then one of him putting on the lion costume. "I would never have seen that, if you hadn't been here to tell me," I said.

The gap between what she thought her documentation showed and what a knowledgeable reader saw was evident. When I asked what the angled corners and magnetic animals were for, she confessed she just liked them. But these visual elements distracted the reader's eye from focusing on what she wanted the reader to see, and 15 images were too many; the reader did not know where to look. Victoria had created documentation with added decorative elements recounting an experience, but she was trying to show what she thought was a shift in a child's theory. She thought that Michael had a theory that monkeys were the strongest animal and that through the role-playing, stimulated by the video, he understood that lions might be stronger.

She and I discussed what photos and text she would need to show this interpretation of his thinking and how everything else needed to be removed to keep that focus. I also reminded her of our colleague Karyn Callaghan's comment that Loris Malaguzzi, a founder of the Reggio Emilia approach, believed that a title should be "a condensed thesis" (Davoli, 2003).

*Victoria's Reflection.* I remember being disappointed by the effect that my panel produced in Carol Anne. She, of all people, should see what I am trying to say. Little did I realize that I had done everything in my power to prevent her, as well as everyone else, from reading my panel in the way that I intended it to be read.... I was focused on collecting data through observation, with the intention to analyze it later, so when the next link unexpectedly appeared before my eyes, I rejoiced. That link was Michael hurriedly pulling on a lion's costume the moment it became available.... I felt an instant urge to share it with the world. I created a poster, somehow forgetting my point: I mixed unfinished stories into the panel as well, naming it "Wild Rumpus."...

Even though I knew that Carol Anne was right, I remember feeling quite uncomfortable after that discussion. I thought something I had created was about to be ripped apart into something less joyful and attractive. It would look plain, institutional, and too serious. It would be stripped of all the happiness I felt in sharing the experience with the world. Happiness expressed through bright colors, decorative features, and plenty of data. I remember forcing myself to put emotions aside and focus on making the panel reader friendly, following rules of visual literacy. I tried several layouts—the captions kept getting shorter and more concise, and the font was carefully chosen to facilitate reading, until it finally started to feel right. Surprisingly, I loved the new panel. I wanted to read it over and over, as opposed to merely absorbing the bright colors of the previous version. It finally worked, but I remember it as a painful process, made possible through a collaborative effort.

Victoria's new documentation panel used six photographs with some focused text to show her perspective on the children's conflicting ideas (see Figure 2). She titled it "Pros' of a Conflict" (signifying positive resolution to

differences between children's ideas about animals).

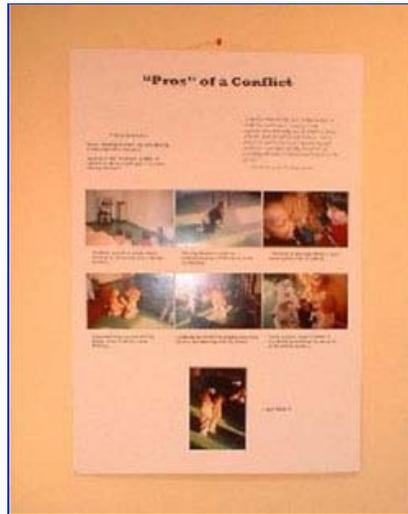


Figure 2. Victoria's revised panel representing her theory about a change in a child's thinking, which she titled "Pros' of a Conflict."

Her new panel focused on making explicit an example of children's thinking about animals and her own thinking about how one child's ideas seemed to have changed. (We are not concerned at this point with whether the thinking is accurate or not.)

Victoria's documentation contains her hypothesis about Michael, developed from observation of his play and previous comments and based on all that she knows about him from the months-long duration of their project. It is at this point in the process of learning to document that the teacher's intentionality begins to become visible. Her thinking about what the children are doing is such that she can make inferences about children's theories and express them with the images and text. Inferences are logical deductions based on limited but presumably accurate information. The accuracy or "truthfulness" of an inference can be confirmed only by redundant information.

The teacher's visual literacy must also be sufficiently developed to convey ideas clearly through the documentation; then she can begin to organize the data and representations of her inferences on the panel. Because the data are now outside her head—the panel is an evidentiary warrant for her story—it can be shared with others, to see whether they have other interpretations. Discussion among teachers about documentation can sharpen their thinking about children's understanding and about what to do to expand and deepen it.

### **Documentation as a Vehicle for Study with Others: Children's Theories about Starfish**

Noula Berdoussis (2006) was teaching grade one when she embarked on an emergent curriculum project and its documentation as her master's thesis. Noula's class had moved from an interest in playing store with a basket of shells to an engagement with "sea creatures," especially starfish. One child had said, "If you cut a starfish arm off, it grows again; starfish can never die." The children were interested in how starfish are born and how they re-grow a ray, which they called "its arm."

Noula worked in a "high needs" school with children considered to have low literacy and numeracy skills. Yet as this project developed, she said, "I am overwhelmed with the possibilities and the emerging data. My heart and mind are racing. I am excited all over again as I see the learning in front of me" (Berdoussis, 2006, p. 23). As she shared the documentation that she developed with the children, she commented, "Instant curiosity and wonder is the only way to describe their initial contact with documentation" (p. 44).

Yet after she created her first documentation panel, which included a transcript from class discussion, photos of children in activity, and a brief teacher commentary, she found herself asking, "Now, did I make learning visible?" She described the panel as cluttered and unfocused. I perceive her as a highly reflective and analytical teacher; responses such as hers lead me to believe that the aspects of learning to document described above—developing habits of documenting, publicly recounting activities, playing with elements of visual literacy—are necessary. Noula knew intellectually what she wanted to do, but wanting to do it did not mean that she could do it. The creation of documentation builds from simpler elements toward more complex functioning. Noula asked herself what she wanted to make visible. What she wanted to make visible, she realized, was the children's theories about how the starfish "re-grew its arm."

Devon, for example, believed that starfish have bones, and he had taken most of the other children with him in his belief. As another child said, "How else could they move?" Devon imagined that the cut ray re-grows because "the bone pushes out and it grows into a leg." Andrew repeatedly said, "They don't got bones" (Berdoussis, 2006, p. 85). He insisted they were "jelly" and thought, "Maybe the skin pulls out" to re-grow a

ray. Noula wondered how—if she intended to “teach with questions” rather than simply supplying answers that the children might or might not understand—she could support them in inventing different possibilities.

She created what she called “documentation strips,” one-fourth the width of standard Bristol board (see Figure 3). On these narrow strips, she illustrated different children’s theories about how the starfish ray “regrows” with two to four selected photographs and a brief passage of text from her transcripts of conversations. For example, during one small group conversation, Devon expressed two theories of how starfish were born. Noula highlighted each of his theories on a documentation strip. She included portions of conversations, photographs of starfish, children’s drawings, clay work, and paintings. She added her own reflections on the children’s reasoning and asked further questions that emerged from the documentation.



Figure 3. Examples of Noula's documentation strips.

Noula used these documentation strips like a deck of playing cards, selecting them for specific purposes. She found that constructing a strip to show a theory was more manageable for her than a larger format and encouraged her to focus her ideas, thus creating clearer documentation. She recombined strips to use in various classroom activities, creating for herself and the children a flexible set of tools to scaffold thinking.

In one instance, for example, Noula used several documentation strips as background material for a conversation among children who held conflicting theories about how the ray “re-grows.” She wanted to provoke them to confront their differences and see if they could think of other possibilities. The conversation went on a long time. Andrew, insisting that starfish did not have bones, thought perhaps “the water moves the starfish.” Devon then said:

Andrew gave me an idea. Me and Andrew's idea. Maybe only the arms and legs got bones. Maybe wind pushes water in the [middle of the] starfish.

While his new idea showed some confusion, he had shifted away from his bone theory to consider other forces (water, wind). At the end of the conversation, Devon said, “Maybe Andrew is right, they don't got bones” (Berdoussis, 2006, p. 72). His theory had changed again.

In Noula's description, it is evident how the layers of her activity—creating documentation that makes theories explicit, revisiting that documentation with children, planning what theories to bring together for discussion, and fostering lengthy collaborative discussion—intersect to encourage children to think more deeply. Through this process, children may become intrigued by what happens in the world around them and want to do research to test their ideas. One of the children, for example, thought the “suckers” on the bottom of the starfish were poisonous: this hypothesis was tested when the children went on a field trip to a store that sold starfish and held some in their hands.

*Noula's Reflection.* During the course of our long-term project on starfish, documentation emerged as a tool in guiding curriculum, suggesting what should come next. The “next” was never clear or predictable, and it was only after a conversation had occurred, was transcribed and later studied, that I as teacher/researcher could select from the children's evolving theories and then make them visible through new documentation strips. I began to view each strip as a window into the children's thinking. Each time a documentation strip was “done,” I realized that in essence it was incomplete, for the next conversation with the children would always open further possibilities as theories were abandoned, reworked, and/or expanded, as the children worked to clarify their thinking. The documentation influenced my decisions as to what theories kept recurring, and thus should be further discussed, and what questions I could bring to the next group conversation to gently guide or provoke the children's thinking so they could come closer to an understanding of “how starfish are born.” Each documentation strip was a visible “trace” of our journey of discovery—a journey that didn't have a clear path, as with standardized curriculum, but was shaped by children and teacher.

Furthermore, to make documentation an effective tool in guiding curriculum, I had to ensure that documentation was current and the children had time to study the new documentation. I posted

documentation strips shortly after our conversation, but we did not discuss them formally until a week later. The waiting period between when the strips went up and when they were formally discussed in the small group offered children an incubation period. It was the incubation period that allowed children to think and reflect about their learning as it was presented to them through windows of documentation. During this wait-time, children could respond to the documentation when they were ready to do so. The incubation period allowed children the freedom to re-experience a moment in their learning or in a classmate's learning, and it opened the possibility of enriching and stimulating future discussion. Also, it provided the opportunity for children to represent and re-represent their theories using clay, paint, and drawing. Documentation strips became a natural, living part of the classroom environment, and new documentation always created a surge of excitement (Berdoussis, 2006, pp. 92-93).

Most exciting during our project were the "surprises" that emerged and how those "surprises" carved the paths of our study. In order for a "surprise" to occur, for example the discovery that the cut-off arm of a starfish [can sometimes] re-grow into a new starfish, I had to accept uncertainty in my teacher planning. What comes next grows from the children as the teacher/researcher practices a pedagogy of listening and makes the listening visible through the documentation. The documentation supports the "surprises" and makes them visible so they can be revisited and thus slowly carve the path of the project. During our project, the children's continued fascination with how starfish are born and how they re-grow their "arm" or ray became the focus. This fascination led to the amazing discovery that starfish have a dual reproductive ability. Each "surprise," evolving theory, or shift in thinking was captured through the documentation.

### Concluding Remarks

Two important levels of thought are made evident in strong pedagogical documentation. The teacher presents data in ways that show others what children have been thinking, feeling, or valuing. At the same time, the teacher selects material and composes a display that expresses her hypotheses about the children's experiences and ideas.

In the strongest documentation, such as the famous Reggio series of six photographs that compose the "Laura and the watch" episode (see Edwards & Rinaldi, 2009), the data are shown in an absolutely compelling way. The sharper the teacher's thinking about the data and her purposes in sharing it, the clearer the message of the documentation.

When Victoria first read a draft of this article, she said:

I felt thirsty for more tips on how to do it well. I anticipate that beginners will wonder why do it at all. How do you practice a pedagogy of listening, through documentation, with curriculum documents demanding "students will learn...?"

She suggested providing ideas for ways that teachers might launch the process of documenting. A few simple ideas can act as entry points for teachers beginning pedagogical documentation:

1. Choose one tool for documenting, such as a digital camera, a video or audio recorder, or a pen and pad of paper. Get used to having the tool available when you want it.
2. Watch for and document ordinary moments of learning, the sorts of events and child thinking you would expect to see occur day by day, year after year, yet in ways specific to particular, unique children. For instance, Lana O'Reilly, a kindergarten teacher, observed a boy examining a book on dinosaurs, turning one page back and forth many times. She watched closely and saw that he was looking at an image of the skeleton of a dinosaur on one page and a full image of a dinosaur on the other. She hypothesized that he was wondering if the pictures showed the same animal. Teachers who are learning to document often wonder how they will know what they might want to "follow" in the classroom before it has happened. Experienced teachers say they learn to sense when and where such potential moments of learning may occur; for example, Virginia Ogada, who works with toddlers, says she can tell from the children's intense focus of concentration that a moment for documentation may be taking place.
3. Choose from several such documentation moments one occasion that you will try to make intelligible to others via more polished documentation, selecting the strongest documentation to make your point. Try naming the learning yourself by giving it a title after documenting. Try doing documentation with a colleague. Lay out what you think is happening as simply as possible and remove extraneous material. Share the documentation with several colleagues and invite them into a dialogue engagement (Wong, 2006) during which they tell you what they perceive and how they interpret the documentation. See how the discussion opens up surprises and new possibilities.

What we have shared here are early steps we experienced in approaching an understanding of Reggio-inspired documentation. Teachers who are comfortable with the first three aspects of Reggio-inspired pedagogical documentation discussed previously—having a habit of documenting, being comfortable with going public, and

developing a more sophisticated level of visual literacy—can more readily create documentation that reflects a clear purpose and expresses children's and adults' theories in ways that contribute most effectively to teaching and learning.

It is not clear to us how the educators of Reggio Emilia use their documentation or the processes of vetting and reconstruction of documented material that they ultimately share internationally. We interpret the cultural products of Reggio Emilia—books, videos, presentations—through the lens of our own cultural preferences and dispositions. But such interpretations are creative—something from outside is taken into our own culture of teaching and adapted, and out of that transformation, something new is created within our own culture. This new creation may or may not bear any resemblance to its original in Reggio; in fact, we can expect it to be quite different. Reggio educators might well look with some perplexity at other cultures' interpretations of their ideas. Our good fortune is that they have shown the extraordinary grace of sharing their ideas and letting them go, not trying to control them, but rather attempting different ways to articulate their experience for other languages, other cultures, other histories. They and others (Davis & Sumara, 2006) challenge us to see locations of learning across multiple domains—in individuals, in groups, classrooms, disciplinary domains, communities. Such an expansive vision carries educators into new realms of thought and action, with pedagogical documentation as process and tool for research and design of a curriculum that listens to children.

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