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ABSTRACT

This paper explores the use of the long-term project as an educational tool in early childhood classrooms. In particular, it focuses on the way in which long-term projects can reflect John Dewey's notion of the "dynamic aim" as a primary force in education. In "Democracy and Education," Dewey suggests that when teaching is dominated by specific goals, the educational process becomes static, and there is an unnatural separation between the activity the student engages in to reach the goal and the goal itself. Thus, the activity has no educational purpose beyond reaching this goal and does not teach the student how to learn beyond this very specific situation. Dewey suggests instead that education be based on a series of dynamic aims. The aims of the activity emerge from the activity itself, and they serve only as temporary beacons for the activity. As soon as an aim is achieved, that achievement creates activity leading to another aim. Long-term projects can be perfect vehicles for this type of approach to education. In particular, the paper focuses on the Reggio Emilia approach to long-term projects, which includes some important attributes such as documentation and "progettazione" (i.e., a discussion of the possible directions that the project might take based on observations of the children and past experience). The paper concludes with examples of long-term projects partially based on the Reggio Emilia approach from two American classrooms--one infant/toddler and one preschool. (Author/LPP)

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Dynamic Aims: The Use of Long-term Projects in Early Childhood Classrooms in Light of Dewey's Educational Philosophy

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Abstract

This paper explores the use of the long-term project as an educational tool in early childhood classrooms. In particular, it focuses on the way in which long-term projects can reflect John Dewey's notion of the "dynamic aim" as a primary force in education. In *Democracy and Education,* Dewey suggests that when teaching is dominated by specific goals, the educational process becomes static, and there is an unnatural separation between the activity the student engages in to reach the goal and the goal itself. Thus, the activity has no educational purpose beyond reaching this goal and does not teach the student how to learn beyond this very specific situation. Dewey suggests instead that education be based on a series of dynamic aims. The aims of the activity emerge from the activity itself, and they serve only as temporary beacons for the activity. As soon as an aim is achieved, that achievement creates activity leading to another aim. This paper suggests that long-term projects can be perfect vehicles for this type of approach to education. In particular, the paper focuses on the Reggio Emilia approach to long-term projects, which includes some important attributes such as documentation and *progettazione* (i.e., a discussion of the possible directions that the project might take based on observations of the children and past experience). The paper concludes with examples of long-term projects partially based on the Reggio Emilia approach from two American classrooms—one infant/toddler and one preschool.

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Introduction

An important question for early childhood educators is how they view their activity in the classroom: Are teachers of young children attempting to reach specific goals with those children, to bring them to some specific destination? Examples of this view of teacher activity can be found in the school readiness debate as well as in many thematic curricula. Or are teachers simply setting a context in which children seek their own purposeful direction, instilling in children an attitude of discipline towards activity that will be of use to the child in future important activities? This attitude of discipline engenders internal motivation on the part of an individual engaged in an activity to continue in that activity even when interest or attainment of a proximal worthwhile outcome is not immediately apparent. The only social/ecological force propelling the actor forward in the activity is foreseeable (but distant and perhaps even cloudy) worthwhile outcomes.

The above questions reflect some central points made by John Dewey (1916) concerning creating the best possible educational experience for children and the society in which they live. Dewey argued that education must be experience based, centering on ideals such as open-mindedness and discipline in aim-based activity. These ideals find a comfortable home in educational models that stress continuous practical activity over direct goal-based instruction. Dewey contends that we must teach children how to engage with the world on a practical level and trust them to construct their own knowledge through (successful) engagement in activities of a lifetime. An obvious vehicle for some of the issues that Dewey outlined in his philosophy, such as the combining of experience and thinking, interest and discipline, and the flexibility of aims, is the long-term project. In fact, teachers in the progressive movement that Dewey's philosophy spawned recognized the potential of using long-term projects to address Dewey's philosophy and established long-term projects as an important part of the curriculum (Katz & Chard, 1989). It is, however, not simply the choice of the long-term project as an educational strategy that is important; there are a number of dangers and difficulties inherent in the use of the long-term project that could move it far from Dewey's philosophy. The method in this case is as important as the strategy. One of the purposes of this paper is to put Dewey's philosophy into the context of a method for long-term projects (and education in general) developed by Reggio Emilia educators.

This paper is presented in three parts. First, we offer a brief outline of some of the Deweyan values that we think can be captured through the use of long-term projects as part of the curriculum. This section will be followed by a discussion of the teaching methodology developed by Reggio Emilia educators that we believe brings these ideals into the real-world classroom. Third, we will present synopses of two long-term projects—one in an infant/toddler classroom and one in a preschool classroom—that were brought to fruition through a combination of the methods developed by Reggio Emilia and strategies developed within the local classroom. Throughout the paper, we attempt to maintain the unity of method and context so important to Dewey and to successful curriculum in any classroom. When method is separated from content, it is only for purposes of observation. Methods only have meaning in the context in which they are employed.

Dewey and Activity

Dewey (1916) saw education as continuous process rather than as goal-directed activity. The emphasis on process, and the trust Dewey placed in the child as part of that process, fits easily with classrooms that employ long-term projects as a natural part of their curriculum. This emphasis suggests (or perhaps demands) the stressing of practical activity in the educational context. Part of the reason for practical activity is that process-based education is more concerned with fluidity, and interest inherent in the

activity, than with any particular goal or content of the activity. The role of interest and fluidity in practical activity is captured in Dewey's conception of aims.

Aims and Flexibility in the Long-term Project

Dewey believed that teachers must establish aims for children or, more appropriately, let children establish aims for themselves. But aims must not fall into the trap of becoming inflexible destinations. Destination, as Dewey (1916) defines it, creates two difficulties for an educative experience. First, any destination that is set up for an activity is separate from that activity. The activity actually devolves into two distinct parts: (1) the object that stands as some glowing end point outside of the child and (2) the activity that the child will use to reach this end point. A prime example is the use of flash cards for educational purposes. The goal of the teacher is to have children learn the alphabet. Each day the teacher holds up a flash card with a letter on one side and the picture of an object beginning with the letter sound on the other side. The teacher has the children identify the object and then identify the letter by sound. By the end of the year, the children have reached the goal of knowing the alphabet.

Although a "dualism" between activity and end point is detrimental at any point in a child's educational career (Dewey, 1916), we feel it is particularly disastrous in early childhood education. Children engaged in this type of "dualistic" educational activity may become less interested in the enjoyment of the activity itself and more interested in things obtained or achieved once the activity is complete. This approach might work in a rough manner as long as the educational institution is continuously able to set up objects of children's desire as the end point of activities. But as Dewey suggests, in a complex society, educational institutions cannot always do so.

The approach young children take in activity has far more importance than any particular content. Educators must make sure they provide an educational context in which children engage in activity for what it brings them at the moment; however, educators should not promote capricious activities that have no meaning beyond enjoying the moment. For activity to have meaning, there must be a temporal sequence leading to an aim. The meaning of the activity emanates both from what the child recognizes as leading up to the moment of the activity and what the child sees as developing through engagement in the activity.

The idea of a destination connotes an end or a stopping point. Dewey believed that inasmuch as activity in life did not have ends or stopping points, activity in education should not either. Any aim, once accomplished, immediately becomes a starting point for a subsequent activity. This characteristic of aims is another reason Dewey preferred the concept of aims to the concept of destinations. Children need to recognize that they are engaging in activity that will take them down the road a little bit further. Such an attitude on the part of teacher and child offers two important features to the educative process. First, such an approach enables the child to understand that the true purpose of an aim is identifying another aim-based activity. There is a temporal relationship between aims, with activity as the proactive force that binds them together. The term destinations suggests that once the child has finished the activity, it is over. Second, an aim-based approach establishes education as a lifelong activity rather than a time-delineated activity.

The teacher and child must work together to develop substantive aims in the educative process. The aims must be inherent to the educative activity itself, and they must be flexible. That said, it was also important to Dewey that aims be both definite and relatively complex. The development of aims is where the role of the teacher as both mentor and cooperative partner with the child becomes important. The teacher recognizes and suggests viable aims for children's activities, but the aims emanate from the activity itself and not from the teacher's belief system about where the activity should take the child.

The teacher must maintain maximum flexibility, while not being so elastic as to allow the activity to eventually become capricious. In other words, the teacher must enter into something akin to Vygotsky's (1978, 1987) zone of proximal development. The teacher recognizes possible aims for child-driven activity and sets them as proximate goals. But these goals are dynamic; as the child's activity changes, the teacher must be willing to let the goals change so that they optimally suit the activity of the moment.

Interest and Discipline

Coexisting with the idea of aims are interest and discipline. The common understanding of the zone of proximal development is that a social interlocutor sets an aim for the developing child that helps pull the child forward in his or her thinking (Vygotsky, 1978). The general relationship between mentor and neophyte is between the neophyte's everyday activities and the mentor's introduction of social/scientific concepts. The zone of proximal development is where these two meet in the thinking of the child (Vygotsky, 1987). The question that Dewey poses in any such relationship is twofold: (1) What is going to cause the child to engage in activity that will achieve this aim? (2) What is going to cause the child to persevere in this activity until the aim is achieved? These questions are not trivial—the whole concept behind the zone of proximal development is that the mentor is attempting to get the child to do something that he or she is not immediately capable of doing and that may be an extension of his or her way of thinking. Dewey's answers to the engagement and perseverance questions are interest and discipline.

For young children, interest is the easier of the two to deal with because young children tend to be naturally open-minded and curious. A first inclination of teachers often is to make activities more attractive through active teaching methods. A teacher attempts to make a target activity more interesting to students by offering them a goal, or an activity, of interest that is separate from that target activity. This goal or activity of interest serves as a proximal reward for engaging in the target activity or meeting the aim of the target activity. But, as mentioned earlier, offering a goal creates a "dualism" between the target activity and the aim of the activity (for example, attempting to teach the alphabet by turning the use of letters into a board game). Dewey labels this approach the "soup kitchen theory of education" (Dewey, 1916, p. 126). This solution is both short term (what happens to the child's interest in letters after the board game runs its course?) and more representative of the teacher's desire for the child to learn the alphabet than of the child's desire to learn the alphabet. Dewey argues that the material itself must be interesting. Interesting materials will draw out of the child the desire to both forecast results from activity and engage in the activity so that these results can be attained.

The partner of interest is discipline. Discipline is the ability to maintain energy in and focus on an activity in order to reach the aim. Discipline is the principle that allows the individual to overcome barriers and obstacles and see an activity through. An opaque aim, where an individual is not immediately aware of the purpose of an activity, must be considered a major obstacle. For instance, it is relatively easy to maintain an adolescent's interest in learning the mechanics of driving; the aims of learning the mechanics of driving are clearly visible (e.g., freedom of movement). It is far more difficult to create a situation where an adolescent maintains an interest in algebra; the aims of the activity are complex and difficult to recognize (e.g., a better understanding of the physical universe). The more distant the worthwhile outcome, the more opaque the activity, the more the need for an attitude of discipline. Discipline, in Dewey's frame of reference, is the ability to think about and reflect on actions, to think about where these actions might lead, and then to follow through on these actions in the face of obstacles, confusion, and difficulties.

How do teachers develop disciplined activity while at the same time maintaining interest in that activity? Central to this type of development is the natural curiosity and open-mindedness of young

children. It is easier to use these qualities if activities remain transparent and children are reminded of aims through mentor support. The best teachers recognize that the desires of young children are transient, and these teachers therefore keep their aims flexible. It is a dance, in many ways, between teacher and child, involving interest and discipline from both.

Education is generally a more utilitarian endeavor with young children. There is less of an emphasis on learning of specific, abstract, disciplinary subjects, and more of an emphasis on everyday education (Dewey, 1916). The combination of easily stimulated (though transient) interest/desire and an emphasis on practical activity enables teachers to locate and use specific purposes of everyday activity as part of their curriculum. The teacher is able to organize educational activity so that children are not only doing something, but they are engaged in activity based on desire that "requires observation, the acquisition of knowledge, and the use of constructive imagination..." (Dewey, 1916, p. 135). As Dewey (1916) notes:

> Given a consecutive activity embodying the student's own interest, where a definite result is to be obtained, and where neither routine habit nor the following of dictated directions nor capricious improvising will suffice, and there the rise of conscious purpose, conscious desire, and deliberate reflection are inevitable. (p. 350)

Experience and Thinking

It is incumbent on the teacher to constantly differentiate between mere activity and what Dewey terms experience. This differentiation is especially difficult because where teachers normally see inherent interest is in play, but the way teachers usually define and perceive play limits the activity as experience. Experience is the natural synthesis of mind and body. Individuals are physically active, and through this activity, they encounter some type of consequence. Vital experience must have some cumulative growth; it should involve experiments with the world that lead to the "discovery of the connection of things." Often, play is not seen this way by adults, especially when compared with more formal, planned lessons. Play is captivating, but it is also transient and "in the moment." Teachers often treat play experiences as separate from formal education or possibly use the materials as a means for introducing interest into what they consider formal education (e.g., deciding beforehand to use cars and ramps to teach children about gravity or relationships between mass and speed). This approach is representative of the aforementioned "soup kitchen" theory of education.

The teacher then has an enormous task in interacting with child-initiated activity so that it serves as vital experience for the child. The child must see experience as interconnected with past and future activities. Activity originates with the child, but it is guided by the teacher so that it is continuous and involves multiple, sequenced purposes. Education about issues such as the relationship between mass and speed naturally emerges through the activity itself. The child, in these circumstances, is not a scientist but an explorer, an active creator of knowledge rather than a passive recipient of knowledge.

Disciplined thinking emerges out of this continuous, interesting activity. The suspense, the doubt of what will occur next in personal exploration (e.g., will certain means achieve an end or will they not?), causes the child to approach the problem both "emotionally and imaginatively." The suspense of the activity drives the child forward. The uncertainty of the experience, combined with the child's desire to achieve a certain aim, cause the child to think about how the situation is unfolding. This type of demanding activity falls within Dewey's definition of play.

Both educational researchers and teachers need to keep learning over and over again that work and (true) play are two sides of the same coin. Work has direction and purpose, and play has direction and purpose. But in play the interest is more direct and individuals engage in the activity of play for its own ends, while in work individuals engage in activity for ulterior motives that are separate from the activity at hand. In other words, the aims of play are always transparent and tied to the activity. You play a

baseball game for a purpose such as having more runs than the other team upon its completion. You put together Lego pieces for a purpose such as having a completed structure of a spaceship. There is no purpose separate from the activity, no other motive for engaging in the activity. If there were, the activity would be work. Compare the activities of a builder putting together the pieces of a real bridge and a child putting together the pieces of a Lego bridge. As pure physical activity, the child's activity is a microcosm of the builder's activity, but the child's purpose and motivation are inherent in the activity itself. The consequences of the physical activity might be building a structure, the development of a peer relationship, and the development of an adult relationship. What is important is that the relationship between physical activity and consequences in play is apparent and can easily be judged. The builder may have ulterior motives for the activity, such as a paycheck to buy groceries.

Recognition of the proximity of play and work as activities helps teachers recognize the relationship between what they do in an everyday context and what the children in their classrooms do. There is often a dualism set up in the classroom between the teacher's activity and the child's activity that can be just as difficult as the dualism between mind and activity. The teacher is not shaping classroom activity but is engaged with the child in the same activity. The only difference is that while the child "plays" to reach the foreseeable aim, the teacher works to create a context for the child where he or she is able to use open-mindedness, natural curiosity, and concentration on purpose to achieve knowledge and discipline.

Deweyan Ideals Expressed in Classroom Activity

Dewey's philosophy sets aims for the educational experience that are often difficult to achieve. The child creates the activity and develops aims out of his or her own creation, but the teacher must maintain some control of the aims. The child's interest in the activity is paramount, and at the same time, the teacher must help the child develop discipline through the activity. To explain the difficulties, we return to Vygotsky's model of the zone of proximal development. There is the neophyte (child), and there is the mentor (adult). The aim of the adult still is to bring the child's understanding of her social and physical world forward through social interaction. But instead of the mentor introducing some determinant activity with a preconceived aim, he or she must wait for the child to engage in an activity of his or her own choosing. The mentor can present the child with different contexts, but the interest must come from the child. Once the child has chosen an activity, the teacher must determine whether it is capricious or has a purpose. The teacher makes this determination by recognizing potential interconnections that a given activity can have with other activities in the child's life. Once again, the purpose cannot come from the needs of the teacher but must come from the desires of the child. The development of purpose in educational activity will almost always involve some type of practical activity with an easily recognizable aim. The teacher must recognize the aim of the child's activity along with the child and maintain it as a goal of the activity, in spite of any obstacles that might arise. The teacher must also help the child to recognize that this aim is also a beginning for further activity; therefore, the teacher must engage in the same type of forecasting that the teacher is attempting to instill in the child. The teacher must recognize and accept any number of directions the activity may take and be flexible enough to appreciate and welcome a direction that did not occur to him or her. Throughout this process, the teacher must trust that the activity itself is bringing the child forward through its own momentum—not in the sense of a leading activity (Leontiev, 1981), but as a space, a context for the development of creativity and discipline.

Long-term Projects in Reggio Emilia

One place where it is possible to see many of Dewey's more abstract concepts in concrete action is in the pre-primary schools of Reggio Emilia, Italy. In particular, the Reggio Emilia approach to long-term projects and the ways in which documentation is used to support teachers and children engaged in these projects are very much in sympathy with the type of educational experience that Dewey was looking to establish in schools. The Project Approach, of course, is not unique to Reggio Emilia. It has been used in other educational forums and is well documented by Katz and Chard (1989). The Reggio Emilia approach, however, includes some important innovations such as *progettazione* (i.e., a discussion of the possible directions that the project might take based on observations of the children and past experience) and documentation that we believe allow it to come close to some of the ideals set forth by Dewey, as outlined above.

The long-term projects are initially established through the interests of the children. To choose a project topic, the teachers can provide activities of possible interest to the classroom and recognize when the children show a natural interest in the topic, or they can maintain an awareness of activities and things children develop an interest in on their own. An example of the former is offered by Rinaldi (1998), while an example of the latter is offered by Rankin (1998). In the Rinaldi example, the teachers asked children to bring back memories of their summer vacations. The teachers expected to hear stories about waves and sunsets and other vacation topics that an adult might normally discuss and find of interest. Instead, a child spurred the interest of the class by talking about "a crowd of legs, arms, and heads." The teachers recognized the word "crowd" as being of interest to the children and pursued the idea. It can be assumed that if the concept had not stirred interest, the teachers would have dropped it. The teachers set up the context for the children to express interest but were open to whatever and however the children did actually express interest. Discussion of family vacations was a possible aim of the activity, but it was not the only one.

In the Rankin example, the teachers took notice of dinosaur toys that young children would often bring to school and how spontaneous play often occurred around these toys. The interest in the dinosaurs became a good jumping off point for an educational activity. In other words, the activity of the children was recognized as something more than capricious activity. The experience was not simply a physical activity followed by a consequence without any judgment of the relationship between activity and consequence. The interest naturally fostered attempts at interconnectedness through secondary experience. The interest gave the activity educational potential. In the Rinaldi example, teachers accepted a direction that created interest for the children, even though the direction was not what they expected. In the Rankin example, the adults saw that they could use interest in an activity to help develop a vital educational experience that could involve discipline. In both examples, the interest of the child was the key to developing vital educational experiences that would eventually lead to an attitude of discipline, and the adults looked for interest from the children. Malaguzzi, the founder and one of the driving forces behind the Reggio Emilia programs, describes one of the essential elements of any project as producing or triggering "an initial motivation, to warm up the children" (Malaguzzi, 1998, p. 90). It is critical that the motivation is seen as coming from the activity in order for the activity to develop into a project.

Children's interest in a particular idea that emanates from their own activity, and the ability to see this activity as moving towards a foreseeable aim, is only the first step—both for a Deweyan model and for the Reggio Emilia model. (The teacher illuminates potential aims, but it is the child who recognizes the activity's actual aim.) The critical question becomes "how do you ensure that a foreseeable aim emerges and is maintained while at the same time making sure that any such aim comes directly from the children who are showing interest in the activity?" The Reggio Emilia model uses the technique of *progettazione* (Rinaldi, 1998); that is, before they actually embark on the project, as well as during the project, the adults involved come together and discuss various possibilities or directions that the project

might take based on observations of the children and past experience. In other words, they discuss the different types of foreseeable aims that the children might develop out of their activity. Two things occur simultaneously as a result of this type of discussion. First, adults come to understand that there are many different types of aims possible in the activity. This understanding gives the children the freedom to create their own aims in an open and free atmosphere (Rankin, 1998). From a Deweyan perspective, this understanding does something else at least as important—it develops a context where there *will be an aim*, where there will be the development of *an attitude of discipline,* so that the individual can engage in activities with more long-term aims. The activity belongs to the child, but the adults make sure that aims recognized by the children through activity are maintained. The maintenance of an aim for the activity can take the shape of provocative questions or activities that allow children to express their thinking at those moments (e.g., writing or drawing about the issue).

The maintenance of the aim still does not make the project a true educational experience in the Deweyan sense. There needs to be a way for the children to understand that aims are in temporal sequence and that accomplishing one aim leads to another activity that naturally (but not necessarily) follows it. In many ways, this ideal might be the most difficult of Dewey's ideals to achieve. Yet a sense of discipline and an understanding of how the mind works in activity are difficult to achieve without a natural momentum in activity. Reggio Emilia educators seem to have developed at least a partial method for dealing with this challenge in their idea of documentation. Documentation involves careful representation of the course of the project through photographs and other observations of the children as they engage in purposeful activity, as well as examples of the children's work. Documentation may be the most unique, and possibly the most important, aspect of the Reggio Emilia approach (Katz, 1998).

In the crowd project described by Rinaldi, the children of the class became interested in drawing people in a crowd in different ways, and an aim of the activity became the ability to draw in profile. The teachers put one girl in the middle of a group and had other children draw her from all sides. The children were able to understand that the girl could be viewed from four sides. The adults then took the children outside of the school where they were able to observe and photograph people coming and going. The children simultaneously engaged in the activities of observing a crowd and being part of a crowd. The children were then shown the slides a few days later and were able to enjoy "those images, moving through their reflections" (Rinaldi, 1998, p. 125). A child drew a multi-person picture in profile, and the aim became an activity with the aim of creating a collage of a crowd. In the dinosaur project described by Rankin, teachers used transcribed text of conversations about dinosaurs to remind the children about what they thought about the size of dinosaurs. The aim of the children's activity had been to create a structure that resembled a dinosaur in shape. The adults, through documentation, were able to have the children take that aim and use it as a springboard for activity with the aim of creating a structure that resembled a dinosaur in size.

Documentation in many ways exists as a living diary of a project. One of the most important aspects of documentation is that it is shared with the children engaged in the project over the course of the activity. This sharing is done to stimulate interest and reinvest the activity with motivational force. The children "become even more curious, interested, and confident as they contemplate the meaning of what they have achieved" (Malaguzzi, 1998, p. 70). One of the major aims of the educative experience, in Dewey's view, is to teach younger children discipline through their natural interest and curiosity in things. What documenting activity and sharing it with the children does is use the discipline they developed through engaging in the activity to reactivate their interest. The children involved in the project are offered a representation of how their purposefulness achieved aims and how those aims in turn became activities. An important activity cycle begins to emerge: interest leads to discipline, the discipline allows the development of interest. This cycle means that at the core of learning/development, especially for young children, is the need to maintain interaction between these

two complementary aspects of activity (discipline and interest). The activity must be interesting enough that children voluntarily wish to engage in it as vital experience. The aim of the activity itself must be worthwhile enough that upon reaching it, children are willing to overcome obstacles (including momentary loss of interest) in order to achieve a subsequent, interconnected aim (i.e., discipline). Interest must always lead to aims that highlight the value of discipline. Aims achieved through discipline must, in turn, reinvigorate interest. The teacher should try to maintain this cycle as long as possible (so that the learning experience becomes a microcosm of life experience). The teachers use documentation in much the same way during their meetings. The maintenance of interest through documentation is of major importance for Dewey, for as we grow older, much of our open-mindedness and natural curiosity fades, and all we are left with is our discipline in seeing a project through in order to create interest.

Methodology in Activity: Two Examples of Long-term Projects

In order to better portray some of the ways long-term projects can be used as part of an early childhood education curriculum, we present two examples with two different age groups. The first project we present is based on preschoolers' interest in shadows. The second project involves infant/toddlers' interest in construction. The classrooms we discuss in this section are different from those in Reggio Emilia in some fundamental ways. First, these classrooms are in the central United States rather than northern Italy. The teachers and the children bring very different everyday concepts to activity from those that might be found in the Reggio Emilia ecology. Although we believe that these classrooms and the Reggio Emilia classrooms were working within very similar versions of what Vygotsky (1987) termed "scientific concepts" of education and the long-term project, these scientific concepts interacted with different everyday concepts. The differences may have been even greater because these classrooms were part of a university laboratory school. Both Reggio Emilia teachers and the teachers described here believe it is important to take the children out into a larger "natural laboratory," but Reggio Emilia teachers use the city as a laboratory, while the teachers in the school described here use the sprawling campus of the university.

Second, the classrooms discussed here were mixed-age classrooms rather than single-age classrooms. Mixed-age classrooms present certain difficulties and certain advantages in project development that may be apparent in our descriptions. Third, the infant/toddler example involves age groups much younger than are usually found in discussions of long-term projects. We feel that involving even very young children in project work is highly representative of Deweyan philosophy in that it shows the seamless thread of lifetime education. Long-term projects are meaningful for the youngest and the oldest possible students because the projects emphasize the process of education rather than the content.

The descriptions of the projects that follow were derived from a variety of sources. Teachers in both classrooms regularly kept informal journals and notes about activities that occurred in their classroom. These notes were used to reconstruct the descriptions of each of the projects. In addition, small tape recorders were used to record conversations between children during the course of their activity. These tapes were then transcribed and were used as a data source.

Documentation panels comprised of the text from teacher notes, conversations between children (or a combination of both), and photographs of the children's activities were also utilized for these descriptions. In the infant/toddler classroom, the documentation for the construction project took the form of several "big books" that teachers, children, and parents could revisit in the same way they would read through any book. These books also included transcripts of conversations between parents and children in the classroom taken from the small tape recorders that parents took with them in their

cars on the drive home. In addition, these books included documentation by the parents concerning their children's interests in construction that parents had observed at home. Documentation of the preschool project was completed on individual panels and by taking slides that could be shown in the classroom. Thus, both the teachers' and the children's voices are interwoven throughout the descriptions that follow.

Shadows in the Tent

The preschool class (20 children, 3-5 years of age) was interested in camping. The teachers had introduced a class camping trip to bring the families closer together as a community, and the teachers decided to follow through on the children's interest. The children mentioned that they wanted to put up a tent in the classroom and bring in flashlights just as if they were on a trip. They believed that flashlights were something you had to have while on a camping trip. The teachers encouraged this activity, expecting that it would lead in the direction of dramatic play involving camping. While the children were playing with the flashlights inside of the tent, they began to notice the shadows that they were creating on the ceiling and the walls. Soon they were moving their heads in front of the flashlight to create more interesting shadow effects.

The teachers noticed the intense interest that the children were showing in the shadows. These events coincided with some beautiful autumn days, so they decided to take the children on some "shadow walks" around the campus. The teachers were very aware of the questions the children were asking with their eyes and their bodies as they suddenly became more aware of the shadows they were creating. There was interest in a natural phenomenon that had not been there before (or at least had not been expressed).

The teachers combined the walk with a number of "challenges" to the children to help guide their natural interest. The addition of challenges is, in many ways, a subtle method of introducing discipline into interest. The children are encouraged to take their interest and use it to achieve an aim. The challenges become progressively more difficult, one building on the other, so that children are both successful in achieving aims and in realizing that one aim immediately leads to another activity and another aim. The teachers gave the children a number of challenges:

- Think about where your shadows would be. Go to a place where you think you'll see your shadow, where you think you won't see your shadow.
- Try and make your shadows touch (Fig. 1).
- Try and make your shadows touch without your body touching.

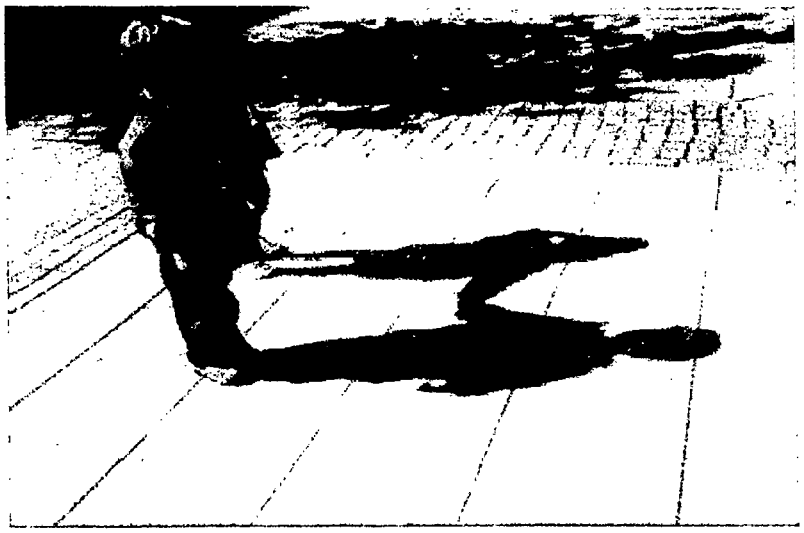

Figure 1. The children held hands to make their shadows touch.

The challenges helped the children to become engaged in the activity as an aim-driven activity rather than as simply an interest-driven activity. The aims came directly from the activity, and they caused the children to develop their own aims such as "making the shadow be in front of you" and "making the shadows be in back of you."

After the walk, the teachers moved to small group work. Small groups are part of the Reggio Emilia philosophy on group projects (Malaguzzi, 1998), but small group work in this preschool pre-dated knowledge of the Reggio Emilia program. One of the reasons for small group work in this classroom is the disparity in developmental levels of the children in the mixed-age classroom. Small group work is meant to limit differences in the children's zone of proximal development (Vygotsky, 1987), but it also limits the degree to which older children can serve as mentors to younger children. It is difficult to know how Dewey would view small groups based on developmental differences. Dewey (1916) was a strong champion of both diversity and maintaining a "real-world" atmosphere. Schools are one of the few places that artificially segregate by age.

Two groups of approximately four children each were created to work on discussions and to explore the potential for more difficult, discipline-based problems in the activity of interest. The two groups were divided according to age and developmental abilities. The younger group (which was completely male) used documentation from the class shadow walks to spur interest. Pictures of the walks were put together in a book along with observations the children made about their shadows. The teacher in charge of this book was able to use the combination of the pictures and the children's own words to help them develop questions, ideas, and interests.

The question in which children showed the most interest was whether shadows could move. The children decided that some shadows could move and some shadows could not move. The teacher took the children outside again, but this time, instead of observing their own shadows, the children observed the shadows of other things. The aim became to see if shadows of different things could move. The children found shadows that they thought were permanently fixed, and they made chalk drawings of the shadows. They then revisited the chalk drawings and were able to conclude that the shadows moved while they were away.

The achievement of the aim naturally led to another activity involving the movement of shadows. The

children in this group returned to making shadows with artificial light. The teacher set up a spotlight and challenged the children to make shadows with their own things. The teacher expected the children to become interested in the size or the intensity of the shadows. Instead, the interest turned social, with children becoming interested in layering each other's objects (e.g., using shadows to put a tail on an object by layering two objects against the light). The friendships of the children came into play, and they became more interested in working together to create different shadow patterns than the shadows themselves. There was a discussion about the content of the shadows. One of the younger boys suggested that shadows have bones, but he was quickly convinced by his friends that they do not.

The second group was composed of more developmentally advanced children. There were actually two groups—an older mixed-gender group that was shown the same documentation as the younger group, so that they had a chance to cement their thinking and suggest directions for further exploration, and a completely female group that engaged in activity based on those conversations.

The teacher had the children draw pictures that represented shadows. From the drawings, there was a discussion on where the shadows would be in relation to people. The teacher leading this group took a piece of paper and split it down the middle. On one of the pieces of paper, she put a shadow, while she left the other one blank (Fig. 2). On the paper with no sun, the children drew no shadows or shadows that could barely be seen. The teacher then built a bridge with toy building blocks and challenged them to draw a shadow (Fig. 3). The children drew the shadows as if they were coming towards them. The teacher asked what would happen if the sun moved, but this concept was too confusing for the children. The children lost interest in the project. The teacher, feeling that there was nowhere to go with the project without the children's interest, decided that there was little to be gained in pursuing shadow issues at that time.

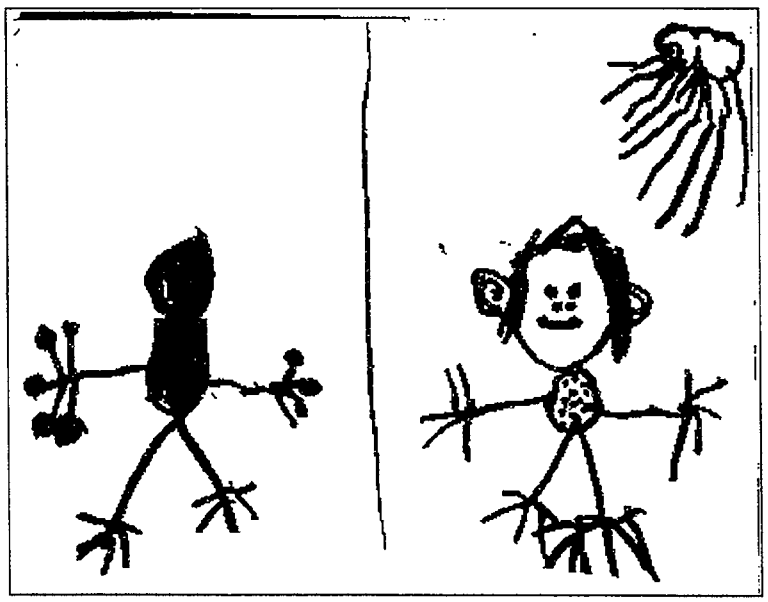

Figure 2. A child's drawing of a shadow.

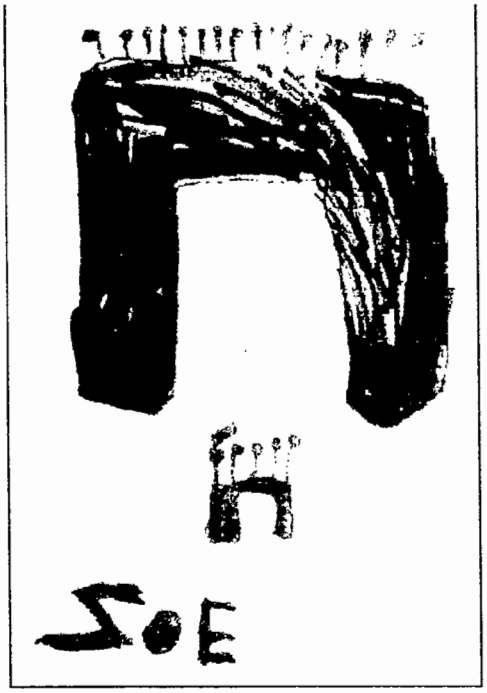

Figure 3. A child's drawing of a shadow of toy building blocks.

Constructing Construction

The playground for the infant/toddler class (10 children, 6 weeks to 3 years of age) was being torn down by the city in order to replace sewer lines that ran underneath the area. The playground, which had been an important part of the everyday lives of the children, became a full-fledged construction site. The teachers and the children often passed the construction site on walks or as they came into and left school. One of the oldest students (2.7 years) would stop by the construction site each day with his father and then come in and talk about it with his classmates. The teachers, noticing the interest that the children were showing in construction activity, brought more blocks and small construction vehicles into the classroom. The older children in the classroom began carrying vehicles around, showing them to the younger children and telling them what they were ("Gack-o's" for backhoes and "Bull-D's" for bulldozers). The children also started incorporating the vehicles into activities at the sensory tables, bringing them to the lunch tables and parking them close by during nap time.

The teachers took a twofold approach to the children's burgeoning interest. They took the children on a number of walks, both to the original construction site and to other construction sites around the campus (Fig. 4). They also engaged in a form of *progettazione*. There was an interesting difference between the way the infant/toddler teachers used *progettazione* and the way it was used by either the Reggio Emilia teachers or even the teachers in the preschool classroom. The teachers developed planning sheets to track their brainstorming about the project based on their observations of the children, and they then used these sheets to guide planning and discussion. What is different about the infant/toddler classroom is that the teachers seemed to focus much more on materials. The materials would elicit interest from the children, and the interest would guide the activity. The teachers would introduce materials such as plaster of paris or popsicle sticks into the environment, or arrange rides for the children in vehicles, and then see how the interest, if there was interest, drove them into some type of disciplined activity.

Figure 4. The children visited a construction site on campus.

The disciplined activity emerged as a construction site developed solely through the actions of the classroom children themselves. The children started the site on their private courtyard (Fig. 5), and while the teachers brought in some materials, they encouraged the children to ask for what they thought they needed. The children began to ask for the same materials they saw on the construction sites they visited; they wanted yellow construction tape around the site and wore hard hats and gloves while they worked (Fig. 6). The children were establishing through their own activity a merging of interest and discipline. The older children externalized this merging by drawing the younger children into their activity, showing them the materials and talking to them about what was happening.

Figure 5. The children developed their own construction site.

Figure 6. The children asked for the materials they saw on the construction sites that they visited, including hard hats.

The teachers continued to take the children out into the world, visiting construction sites and talking to the workers. The teachers documented much of the project with pictures and videotapes, creating large portable books of the children engaged in different activities. The children were able to take the books

home and to discuss them with their parents. This strategy helped to create a second line of interest where children interacted with their parents. Many of the parents reported having long conversations with their children concerning construction, creating a second line of discipline as well. The teachers brought the parents into the documentation process by offering them the opportunity to borrow the small classroom tape recorder and the classroom camera so they could record conversations in the car and stop to photograph construction sites in their own neighborhood. The documentation by the parents was melded with the documentation by the teachers. The interaction between the two types of documentation created further excitement and interest when the parents and children saw things that "belonged" to them displayed in their documentation. One child went as far as to develop his own construction site in his living room at home.

The project took a number of twists and turns that the teachers did not expect. Near the end of the project, some of the children started to become interested in baseball. The teachers expected the children to move on to other interests. Instead, the children combined their interests, first building a baseball parking lot on their still-active construction site and later building a baseball field. After about 6 months, one of the children came into the classroom and said the teachers had to go out and take a picture "Now!"—the construction project on the playground was complete. Soon afterward, the children completed their own construction site in the courtyard. The construction fence came down, the signs were put away, trucks came back in, and the construction was complete.

Discussion

The use of long-term projects in the curriculum can be very useful, especially in bringing many of the educational ideals that Dewey envisioned to fruition, but it is fraught with perils and demands great attention and energy on the part of teachers. The teachers must, in a sense, become learners along with the children. The teacher has to be careful to not act as a mentor but as a guide; that is, the teacher cannot think solely in terms of a prearranged destination to activity but must focus on offering a sense of discipline to the activity. *Progetazzione* offers an interesting variation on Dewey's proverbial "lighthouse" (i.e., the teacher sets up the lighthouse to help guide the activity of the student). The lighthouse itself sets a destination, but it also illuminates enough area that students may find port in a different, unanticipated place. Teachers should direct a wide beam of light in their attempts to illuminate areas where children might find their aims. They must be flexible enough to accept the aims that children find through their own activity. In Dewey's (1916) developmental framework, it is young children who are better able to find the interest even in the seemingly most mundane materials and activities; it is the adults who are able to infuse these activities with discipline so that they maintain the momentum that allows for discovery. Children and adults should be able to use each other's strengths in the development of activity, to feed off of each other and become co-creators in true joint activity.

One of the reasons joint activity where the teacher acts purely as guide is so difficult is because teachers so often want to be mentors. The idea of mentorship is prevalent in many aspects of social relationships in our society. We believe that parents should teach children the right way to do things, that teachers should teach students the right way to do things, that managers should teach subordinates the right way to do things. It is difficult and frightening to escape the notion of teacher as mentor, especially as children move into society. Both consciously and unconsciously, we think it is the teacher's role to offer the neophyte the particular types of knowledge that will allow him or her to succeed in the larger social milieu (Vygotsky, 1987). This assumption is apparent in the two examples from the university preschool offered above. The long-term project in which the teachers were most successful acting as guides, rather than mentors, was conducted with the youngest children. The teachers genuinely became

co-learners with the children, exploring topics that neither of them knew very much about. It was the children who had complete control of the activity. The teachers maintained discipline and were able to set up parallel relationships that engendered discipline (with the parents) through documentation. But the children's interest had so much control over the direction and the aims of the activity that even *progettazione* was primarily concerned with materials that could elicit aims, rather than aims themselves.

The older the children got, the more difficult it seemed to become for the teachers to maintain a non-mentor/guide relationship with the children. The younger children in the preschool shadows project were able to maintain moderate control over their activities. But the teacher of the older group of children seemed somewhat intent on bringing the children towards a specific destination through activity. The differences became apparent in how quickly the children lost interest in the projects as the teacher became more intent on instilling not only discipline but destination.

This discussion leaves some important questions that educators need to ask themselves in using Dewey's philosophies or long-term projects in their classrooms. Is the guide relationship between teacher and child possible with older children? If it is not, is the reason social/historical, or is it the result of the ontogenetic development of the child? Are teachers unable to take a guide approach to the education of young children because non-mentor teaching relationships are so rare in the everyday activity of our society (Vygotsky, 1987)? Or does the development of the thinking of the child force teachers into a mentor-like relationship?

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