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ABSTRACT

This paper describes the the Reggio Emilia Approach and recommends adopting the curriculum for teaching science in U.S. schools. The underlying philosophy of this approach is its uniqueness within the constructivist paradigm and its potential as an exemplary early childhood program that can be adapted to teach young children science. The educators and parents at Reggio, through a strong commitment and cooperation, have developed an excellent program over the years that has been exemplary not only for educators in Italy and Europe, but has also made a tremendous impact on early childhood education in the United States. The Reggio school uses an integrated curriculum that combines cognitive/symbolic processes in learning. (YDS)

# Early Childhood Science: Adopting the Reggio Emilia Approach

by
Josephine M. Shireen Desouza

# EARLY CHILDHOOD SCIENCE -- ADOPTING THE REGGIO EMILIA APPROACH

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## The Reggio Emilia Approach – The Underlying Philosophy

The focus of this visual presentation is on the Reggio Emilia Approach, its underlying philosophy, its uniqueness within the constructivist paradigm, and its potential as an exemplary Early Childhood program that can be adopted to teach young children science. This distinguished program took is its roots in a town called Reggio Emilia, in Northern Italy. In 1963 the Municipality of Reggio Emilia first introduced preschools and later infant toddler centers; it has since acquired fame, for becoming one of the most distinguished community –supported childcare systems in Western Europe. According to Gandini (1997), the educators and parents at Reggio, through a strong commitment and cooperation, have developed over the years an excellent program that is exemplary not only for educators in Italy and Europe, but has made a tremendous impact on Early Childhood education here in the United States.

## The Reggio Emilia Principles

While the works of John Dewey, Jean Piaget, Lev Vygotsky, and other European scientists have inspired the many experiences at Reggio Emilia, the program operates on some basic fundamental principles. Lella Gandini (1997) describes these basic principles separately, but emphasizes that they are to be considered as being connected and part of a coherent philosophy. According to her children are of prime importance, and according to educators at Reggio, are portrayed through the "image of the child." This image

characterizes children as having great potential, indelible curiosity, readiness to question and construct their own knowledge through interacting among themselves and their environment. In doing so they establish relationships, learn to negotiate with everybody and everything they encounter.

The school is viewed as a system of relationships, in which the child is educated but not in isolation from their peers, family, teachers, the school environment, community and the greater society. There is immense feeling of belonging, reciprocating and sustenance in children's relationships and interactions within this system.
This program recognizes and supports the rights of children, parents and educators. Children have a right to an education that enables them to grow to their fullest potential, the parents have a right to be involved in the academic life of their children and the teachers have a right to professional growth.

Parents play an important advisory role in the administration of the school on a day to day basis and actively participate in special events, excursions and celebrations. Another important aspect is the role of space. The Reggio schools value the power of instructive space. While it provides opportunity for encounters, communication, and relationships, it also is deliberative in the arrangement of structures, objects and activities. The environment is aesthetically arranged, is inviting, encourages a variety of activities involving discovery and problem solving. Communication is fostered at all levels. It is highly valued and personal. Both students and teachers have boxes with their names written on them, arranged along the halls. These boxes are used for leaving messages and surprise notes to one another. Engaging young children in communicating

through written messages increases their interest and helps them value reading and writing well before they are formally introduced to it in elementary school.

Teachers utilize the space in providing opportunities for children to interact with the teacher, with few and with many other children, or even alone if they wished. These teachers know and value that children learn effectively through forming relationships and interacting in small groups. Most often the teacher initiates communication by grouping the children and setting the stage for asking questions or responding to them. In this setting children learn to listen and pay attentive to each other. This type of grouping is also favorable to the emergence of cognitive conflicts which can result in a revelation, or a procedure that children adopt to construct new knowledge together.

Typically children stay with the same teacher for three years (infancy to 3 and 3 to 6). However, they do change environments according to their developmental needs. During this period, teachers learn the personal time of each child and their particular characteristics. The role of time provides for continuity. Activities are not set by the clock rather, a full-day schedule is planning at a leisurely pace provides children to enjoy encounters with their friends, enjoy the beautiful environment and complete projects to their satisfaction.

Teachers are considered partners in the process of learning. They pay very close attention to children's ideas, hypotheses and theories. They document what they observe by making notes, or audio or visual recordings. Teachers then discuss and compare their observations with each other, and with the pedagogical coordinator (*pedagogista*). They are now ready to offer children occasions to discover and revisit their experiences. The

teacher's role is thus a reflective one, of continuous research and learning where children are also part of the team.

The Reggio schools achieve their goals through cooperation and organization at all levels. Teachers work in pairs as equals. Teachers play the part of researchers, gathering information as they work with children to continue the process of documentation. They enter into collaborative discussions and interpretations of both teacher's and children's work. A weekly schedule of about 6 hours are set aside for meetings among teachers, meetings with parents and for in-service training.

The schools are further supported by a team of *pedagogisti* who maintain the connections between the various parts of this complex system, and are responsible for interpreting the rights and needs of each child, family and group of teachers. This team of *pedagogisti* provides a supportive structure for all, teachers, parents, community members and city administrators.

The Reggio schools promote art not as a separate part of the curriculum, but as an integrated part of the whole cognitive/symbolic expression involved in the process of learning. A teacher who has been trained in the area of visual arts works closely with children. This teacher is called the *atelierista*, who works in a workshop or studio called the *atelier*. The *atelierista* works with the other teachers exchanging ideas on how and what materials and media are to be used in the various projects.

The curriculum followed in the Reggio schools is not established in advanced. Initially, teachers formulate tentative goals and make predictions as to the direction projects and activities might take. Only after carefully observation and dialoguing with children in action, they compare, discuss and interpret what activities might be suitable to offer to

these children to sustain their interest and involvement. The curriculum in a sense 'emerges' and is now popularly known as the emergent curriculum.

The power of documentation is immensely felt throughout the whole school. Documentation includes, photographs, transcriptions of children's remarks and discussions and any representation of their thinking and learning. The *atelierista* with the help of other teachers display the pieces of documentation, which serve several functions. These functions include increasing parental involvement by making them aware of their children's experience and progress. It facilitates better understanding of children's experience and promotes discussions, and professional growth among teachers. It is a form of appreciating and valuing children's work. It also acts a well documented history of the school in which children take pleasure in learning.

## The Reggio Approach and Science Education

Fleer (1993) in her analysis of the current science education research literature from an early childhood perspective reports that, we urgently need to determine which aspects are relevant and useful for teaching science to young children (3-5 years of age). Many models and approaches have emerged from the constructivistic paradigm that have shown to be more effective than previous approaches (Millar & Driver, 1987). However, these models have not been successful in promoting conceptual change. The Reggio Emilia Approach is exceptional and unique within the constructivist paradigm in that it upholds the teacher's role as a scaffold to a child's learning of concepts. During this process the teacher dialogues with children, offering them occasions for discovery and revisitation as, learning is not considered a linear process but a spiral one (Malaguzzi, 1993). Collaboration is the key to success of the Reggio Emilia schools. This

collaboration Rankin (1997) views as "a system of social relationships whereby children and adults, including both educators and parents, coordinate their action and restructure their thinking and resources in relation to each other." (p.72).

Recently, the *National Science Education Standards* (1996) were published specifying what all children in the United States should know, value, and be able to do. The American Association for the Advancement of Science (AAAS) under the auspices of Project 2061, has also developed benchmarks for students at different grade levels. Adapting the Reggio Approach in the school curriculum in the United States is not an easy task, and adopting all its elements is a challenge. However, after observing and participating in the 1997 Spring study of the Reggio Emilia schools, my recommendation is that, adopting the project-based emergent curriculum will certainly have an impact the sciencing of young children. The learning experiences at Reggio are typically inquiry-based projects. The ideas for projects might originate from a variety of experiences in which children and teachers may have constructed knowledge together. The teacher might suggest a topic or an idea or problem may be proposed by the children. The merit in this approach is that general educational goals can be established and without formulating specific goals in advance. During this process the teacher hypothesizes what might be the outcome of some of the pedagogical decisions based on children's previous knowledge.

Thus, objectives may be established from perceived children's needs and interests, which might be expressed at any given time during the project. The direction the project takes could also be based on what he or she infers as the work progresses. This is the basis for an emergent curriculum. The process skills such as observing,

communicating, predicting and understanding space and time relationships are some of the skills developed in the emergent curriculum. Children are encouraged to hypothesize, and explain how they would experiment, even though teachers know that the students' approach or hypothesis is incorrect (Edwards, Gandini, & Forman, 1993). The social nature of intellectual growth is enhanced through discussions among children and children and adults. This curriculum encourages parents to participate in the activities of their child, perhaps supply materials and supplementary books, or work with the physical environment. Katz having visited Reggio Emilia offers some advice to educators who are in the process of renewing early childhood curriculum 'we have to start somewhere, and our children cannot and should not wait until all the elements are in place. We are all deeply indebted to our colleagues in Reggio Emilia for showing us again what is possible when a whole community is deeply committed to its children. (1997, p.111)

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