Young Investigators

The Project Approach in the Early Years

THIRD EDITION

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EDUCATION

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Preface

IN PREPARING THE THIRD EDITION of this book, we have taken into account the questions raised and issues presented in the course of our work with many teachers of young children as we have helped them implement the project approach described in *Young Investigators.* Many of the questions concerned how best to involve young children in project work when they had not yet achieved mastery of basic literacy skills.

Many of the resources on the project approach that are currently available for teachers are most useful for older children who have verbal fluency and beginning literacy and numeracy skills. These children, who often have a large vocabulary, can easily talk about their previous experiences related to the topic being investigated and can begin to formulate questions to which the investigation will seek answers. In addition, mastery of literacy skills (reading and writing) provides older children with ways of researching the topic, recording their thoughts, and representing their growing understanding of the topic that are not usually part of the young child's repertoire. Children who are 3 and 4 years old are still developing verbal fluency and the ability to organize their thoughts for communication. Formulating questions for investigation is often a challenge for young children. Five- and 6-year-olds are in the process of learning what the reading and writing process is all about. Research and representation take a different direction with these young learners. In addition, children with special needs in classrooms often present challenges with respect to the communication and representational skills that are part of project work. This book provides a resource that specifically addresses some of these issues.

In our work with teachers we have also encountered doubts and concerns about whether children whose early experiences seem to put them at risk for difficulties in school might respond to the exploratory and child-initiated nature of project work. In such cases also, many school officials and teachers have expressed the view that children coming to school with less than optimal school readiness and from low-income homes were most in need of formal academic exercises, and that experiences like project work were most appropriate for wealthy and gifted children. As if these kinds of concerns were not sufficient to inhibit teachers' temptations to try project work in their curriculum, recent developments have placed them under increasing pressure to meet state and local performance and content standards. Many educators believe that such standards cannot be addressed in any way other than with formal instruction. These concerns are addressed throughout this book.

Interest in the project approach has been growing fairly consistently over the last three decades as more and more teachers have reported their experiences in journals and at conferences. For example, several major programs have been implemented in Chicago Public Schools in cooperation with Kohl Children's Museum. The Illinois Project Group continues to meet to share project work and is continuing to increase in number of participants. Methods of project work besides the project approach (such as problem-based learning and place-based learning) are also growing rapidly and have become integral parts of plans for 21st-century schools. Projects from schools throughout the country and with students of all ages are featured on forward-thinking websites such as Edutopia.org.

A continuing influence on educators of under-7-year-olds has been exposure to developments in early childhood education in the small northern Italian city of Reggio Emilia, including the extended projects done by the young children there. The approach to project work taken in Reggio Emilia is more informal and flexible than the strategies we recommend and describe for the project approach (see Hendricks, 1997). The project approach is, in fact, an approach to meeting curriculum needs and incorporates academic and intellectual goals and standards of the schools. Nevertheless, all of us in the field have been inspired and motivated by examining the work of the Reggio educators, especially in the use of "graphic languages" and the power of careful documentation to enrich the work of young children and their teachers (Cadwell, 2003; Gandini, Hill, Cadwell, & Schwall, 2015).

Several changes will be evident in this third edition of *Young Investigators*:

- We have received more and more requests for information about working with our very young learners. Thus, we have expanded our discussion of projects with toddlers as our understanding of the importance of 0–3 increases. Chapter 7 still presents Sallie Sawin's wonderful adventure of toddlers investigating a fire hydrant, and a new toddler project on signs has been added.
- The rapidly accumulating evidence of children's lack of connection with the natural world has led us to expand our discussion of doing projects with nature topics. A new chapter, Chapter 8, on connecting children with nature has been added. It has been a joy to see teachers become co-learners in the exploration of the natural world.
- Chapter 9 has also been added to explore how project work enhances STEM learning, as more and more schools are making a concentrated effort to bring more science, technology, engineering, and math into their curriculum. Project work is an excellent way to approach STEM teaching because of the integrated nature of project investigations. In Chapter 9 you will see how science, technology, engineering, and math experiences fit naturally and easily into a preschool classroom in the Airplane Project.
- In response to the concerns of teachers who recognize the benefits project work offers to children but who are uncertain how to proceed in the face of certain challenges, we have provided the new Chapter 10, where we focus on integrating project work with required curriculum and standards, involving special needs children in project work, and enhancing learning opportunities for second-language learners through project work.

FINALLY, this book is dedicated to the proposition that all children are natural-born investigators. Our experience confirms the related proposition that the preschool years are an ideal time to support and strengthen the inborn dispositions of all children to observe and to investigate their experiences and their environments by incorporating the project approach in the early childhood curriculum. As readers will realize throughout the following chapters, our confidence in this proposition is supported by a wide range of experiences with teachers and children by whom we have also been instructed, inspired, and enriched.

CHAPTER 1

Projects and Young Children

> I love project work because it enables my children to go in depth with their learning. They really like to investigate and really like to explore. Project work allows me to meaningfully bring real artifacts into the classroom for them to get down, get their hands into their learning . . . just a real in-depth exploration of the topic. I like project work too because it covers all areas of curriculum and does not just focus on one thing such as literacy. A project can help me integrate all areas of the curriculum in an engaging way.
>
> —Lora Taylor, prekindergarten teacher

LORA TAYLOR has been doing project work for more than 10 years. Over the course of those years, circumstances have changed for Ms. Taylor and other teachers in the early childhood field. Concerns about students not doing well in school and increasing accountability issues have intensified the emphasis on standards and required curricula, both of which impact what occurs in classrooms, even those of 3- and 4-year-olds. Twenty years ago teachers were considered "good" if their classrooms were lively and offered an assortment of meaningful and developmentally appropriate learning experiences for young children. Good kindergartens and 1st grades were those that encouraged play and socialization and brought literacy to life through active engagement with books. Many children did well in such classrooms and went on to become successful students in the upper grades. However, some children did not. Those children faced specific challenges that can affect learning, such as poverty and learning a second language (Berliner, 2009). Today's early childhood and school environment is changing rapidly, as the numbers of children facing these challenges have increased. In the United States, more than 16 million children live in families with incomes below the federal poverty level—$23,550 a year for a family of four (National Center for Children in Poverty, 2014). That is 22% of all children in the country. The percentage of English language learners (ELLs) in U.S. public schools grew from 8.7% in the 2002–2003 school year to 9.2% in 2012–2013 (National Center for Education Statistics, 2015). Along with these changes in the student population, there has been increased concern with accountability, which has also brought about an increased focus on discrete knowledge and skills that are testable (Ravitch, 2010).

At the same time, we are realizing that children in our schools today will live in a world that we can only imagine (Darling-Hammond, 2010). Technological change and the development of a global economy require that our children develop 21st-century skills (Partnership for 21st Century Skills, 2016). To be successful students, our children will need to be technologically literate and to feel comfortable communicating electronically. They will need to be critical and creative thinkers and be able to work on teams collaborating within organizations with a diverse membership. They will need to be able to take initiative and integrate what they are learning from different disciplines. Most of all they will need to be flexible and eager to learn new skills and adapt to rapidly changing challenges.

Although we know that projects fit into those active, engaging classrooms of Ms. Taylor's past, do they also fit into the classrooms of today with the increased emphasis on standards, and, more importantly, do they prepare children for their lives in the 21st century? The answer on both counts is yes. Because many other educators agree with this assessment, interest in project work is increasing, and project work is now included in most recommendations for educational reform. For example, the George Lucas Foundation, an organization dedicated to creating a vision for this new world of learning through leading-edge interactive tools and resources (Edutopia.org), endorses project work as one of its Core Concepts. Teachers like Ms. Taylor—as well as kindergarten and 1st-grade teachers who now do much of their planning around standards—are discovering that project work enables them to integrate knowledge and skills in meaningful ways.

THE PROJECT APPROACH

Inspired by the work of Lilian Katz and Sylvia Chard (2000; Chard, 1994) on the project approach, many teachers of young children are introducing opportunities for children to engage in investigation as part of the studies undertaken in their classrooms. The early years are an important period for all aspects of child development. Children's natural dispositions to be intellectually curious and to investigate their environments emerge (Katz, 1995). They learn about tools such as reading and writing and become motivated to develop and use a wide variety of related skills. It is important that they have an opportunity to experience active, engaged learning.

However, research and investigations are easier to incorporate in a curriculum for older students, who have mastered reading and writing, than in early childhood programs. This book presents the teaching strategies and project stories of Lora Taylor and other teachers who are successfully using the project approach with 3-, 4-, and 5-year-olds and with 1st-graders who are beginning to read and write. Even toddlers are doing project work. In this volume we summarize the knowledge gained as projects have been undertaken in schools, child-care centers, and early intervention programs in rural and urban areas and in small towns. These projects are described with step-by-step explanations of how young children's projects are guided by teachers and caregivers. Also included are strategies and project stories of teachers doing project work with toddlers.

Defining Project Work

The project approach is not a new way to teach children. It was a central part of the Progressive Education Movement and was used extensively in the British Infant Schools in the 1960s and 1970s (Smith, 1997). Interest in the potential value of project work was renewed with the publication in 1989 of the first edition of Katz and Chard's *Engaging Children's Minds: The Project Approach* (now in its third edition: Katz, Chard, & Kogan, 2014). Even greater interest in the project approach was stimulated by the impressive reports and displays of group projects conducted by children in the preprimary schools of Reggio Emilia (Edwards, Gandini, & Forman, 1993, 1998; Gandini, 1993; New, 1990, 1991; Rankin, 1992). According to Gandini (1997):

> Projects provide the backbone of the children's and teachers' learning experiences. They are based on the strong conviction that learning by doing is of great importance and that to discuss in group and to revisit ideas and experiences is the premier way of gaining better understanding and learning. (p. 7)

Although the word *project* has many meanings, when used in the context of "project approach," it has a specific meaning:

> A project is an in-depth investigation of a topic worth learning more about. The investigation is usually undertaken by a small group of children within a class, sometimes by a whole class, and occasionally by an individual child. The key feature of a project is that it is a research effort deliberately focused on finding answers to questions about a topic posed either by the children, the teacher, or the teacher working with the children. (Katz, 1994, p. 1)

There are other approaches to curriculum that are similar to the project approach. These also involve deep investigation and student initiation and guidance of learning; some are more content-based or have additional goals. These approaches are often used in classrooms with older children. They include project-based learning (Polman, 2000) and problem-based learning, often called PBL (Barrell, 2006). Project-based learning, like the project approach, is centered on the learner and affords learners the opportunity for in-depth investigations of worthy topics. Another project method that centers project work on the neighborhood and community near the school is place-based education (Smith, 2002; Sobel, 2005). In all of these approaches to project work, learners are more autonomous as they construct personally meaningful artifacts that are representations of their learning (Grant, 2002).

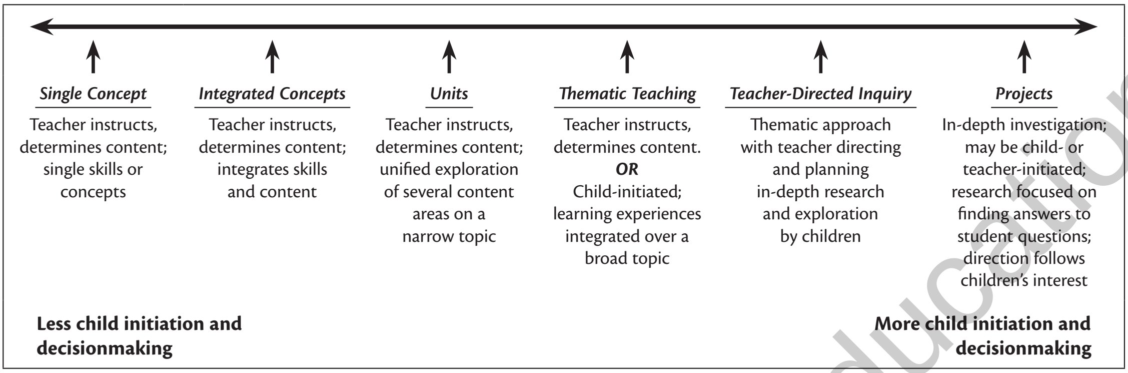
Projects, Units, Themes, and Learning Centers

Many teachers use units or themes for organizing the activities they provide. A theme is a broad concept or topic, such as "seasons" or "animals." When using a theme, teachers assemble books, photographs, and other materials related to the theme. Experiences in most content areas or domains of development (such as language, math, or science) are then related or connected to the theme.

Units usually consist of preplanned lessons and activities on a specific topic that the teacher considers important for the children to know about, such as "magnets" (Harlan, 1984). When providing information in units, the teacher typically has a clear plan about what concepts and knowledge he or she wants the children to learn.

Many teachers also use learning centers as a way to organize their teaching. Areas of the room are designated for the investigation or development of certain knowledge and skills, such as "block area" or "music and movement area" (Dodge, Colker, & Heroman, 2002). Materials and equipment for each area are selected to teach concepts and provide practice in skills that the teacher wishes the children to develop.

FIGURE 1.1 • Degree of child initiation and decisionmaking in different approaches to teaching.


Single Concept
Teacher instructs, determines content; single skills or concepts
Integrated Concepts
Teacher instructs, determines content; integrates skills and content
Units
Teacher instructs, determines content; unified exploration of several content areas on a narrow topic
Thematic Teaching
Teacher instructs, determines content. *OR* Child-initiated; learning experiences integrated over a broad topic
Teacher-Directed Inquiry
Thematic approach with teacher directing and planning in-depth research and exploration by children
Projects
In-depth investigation; may be child- or teacher-initiated; research focused on finding answers to student questions; direction follows children's interest
Less child initiation and decisionmaking
More child initiation and decisionmaking

In all of these methods, however, the focus is not to help children pose questions to be answered or take the initiative for investigation. Many of these methods have an important place in the early childhood curriculum. However, there are additional opportunities for growth of knowledge, skills, and dispositions when children ask their own questions, conduct their own investigations, and make decisions about their activities. Projects provide contexts in which children's curiosity can be expressed purposefully, and that enable them to experience the joy of self-motivated learning. Teachers do not always know what direction a project will take or what aspects of a topic will interest a particular group. Well-developed projects engage children's minds and emotions and become adventures that teachers and children embark on together. The continuum in Figure 1.1 represents the degree of child initiation and decisionmaking in the learning process with different approaches to teaching. Projects are on the far right of the continuum because a child or children in a classroom often initiate the project topics. Projects also involve the child in making decisions about topic selection, methods of investigation, and how to culminate the project. There are many valuable learning experiences that can and do occur at all points along the continuum. Teachers who use the project approach often also teach single concepts and employ units, themes, and directed inquiry. A classroom may have project work as well as thematic and single-concept teaching happening in the same day. Some topics, by their nature, do not make good project topics and are more effectively taught as single concepts, units, or themes.

We believe, however, that projects provide experiences that involve students intellectually to a greater degree than the experiences that come from teacher-prepared units or themes. It is the children's initiative, involvement, and relative control over their own activities and participation in what is accomplished that distinguish projects from units or themes. Additional differences between projects and units or thematic teaching include the length of time devoted to the topic, the teacher's role, the timing of field trips, and the use of a variety of resources. These differences are summarized in Figure 1.2.

As interest in project work has increased, some publishers of curriculum materials have put together packages of materials for "project-like" experiences. These are sometimes referred to as *studies* or *investigations.* Although these activities are structured similarly to the project approach with webbing and questioning, they are more similar to themes and units than they are to project work. In these studies or investigations, topics are preselected, materials are preselected and often provided in a kit, and goals and activities are specified for the teacher. We find that teachers are more likely to have rich project work in their classroom when they base projects on observations of children's deep interests as seen through their play, stories, and questions, which reveal their knowledge or their culturally based experiences. In deep project work teachers are still able to integrate and "cover" curriculum goals and concepts, but they do so in response to children's interests. The project is more likely to match the needs and culture of the children when the teacher chooses materials and plans experiences based on reflections about the children, as opposed to using preplanned kits. The purchase of kits can limit the direction of investigations that occur in a program and discourage teachers who are trying to connect to the intellectual life of their children. Since kits cost money, they are often used year after year regardless of the children's interest. Because teachers are not doing their own research, preparation, and planning, they are not as likely to become intellectually involved in the topic and develop

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FIGURE 1.2 • Differences between teacher-planned experiences and the project approach.

In teacher-planned experiences, such as units, you are more likely to see	***In projects you are more likely to see***
Topics determined by curriculum and teacher; may or may not be of interest to students.	Topics negotiated between students and teacher with integrated curriculum goals; children's interest a major criterion for topic selection.
Length of learning experience predetermined; shorter time periods, such as 1 or 2 weeks.	Length of learning experience determined by project progression; usually several weeks, sometimes months.
Teacher plans in advance, presents topics, designs and prepares learning experiences.	Teacher observes children's investigation, uses student interest to determine next step of the project.
Teacher decides on objectives based on curriculum goals. Teacher may or may not include inquiry experiences and student research to achieve objectives.	Teacher webs to assess prior knowledge, then organizes project so students learn what they do not know; integrates curriculum objectives as project progresses; always involves child investigation.
Knowledge gained through teacher-planned experiences, resources brought into the classroom, small- and large-group activities, and events.	Knowledge gained by finding answers to questions or investigation; children involved in determining the activities and events and in how to find answers.
Resources are provided by the teacher, but students may also bring in resources.	Resources are brought in by students, the teacher, and experts who visit the classroom or are gathered on field-site visits.
A field trip may or may not be included. If included, field trips may occur at any time but often near the end of the unit to culminate the study.	Field-site visits are an important part of the project process. Students may do several site visits for one project. Field-site visits usually occur early in project.
Topic often taught at specific teacher-determined times of the day, or it may be integrated into many content areas and permeate the day.	Project permeates the day and the classroom, involving many different curriculum areas and skills.
Activities (such as making a craft, doing a science activity) are planned by the teacher to teach specific concepts.	Activities focus on investigation, finding answers to questions, and using resources. Teacher supports integration of concepts during debriefing and discussion.
Representation relates to specific activities—drawing to show observations in a science experiment, creating maps, drawing a picture, or writing a play, for example. Representation activities are not usually repeated.	Representation (drawing, writing, building, constructing) challenges children to integrate concepts. Representation documents what children are learning. Activities are repeated to show growth in knowledge and skills as the project progresses.

their own rich background understandings of the topic. The result is that children don't have the opportunity to see their own teachers become excited, committed colearners as they encounter new concepts and ideas right along with the children.

In the *project approach*, the topic and direction of the project are determined by child interest and engagement. It is the children's questions and what they find out that determines the direction and outcome of the project. Representations grow from the focus of the children's work. The simplest way for teachers to check and see if a true project has occurred in their classrooms is to look at the role the children's questions played in the investigation:

- Did the topic come from the children's lives, and was it selected because of children's authentic interest and questions?
- Were there meaningful and complex questions generated by the children?
- What happened as a result of those questions?
- How did children's learning shape their actions and representations?