

**Project Zero**

**Reggio Children**

**making learning visible**  
**children as individual and group learners**

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## **making learning visible**

**children as individual and group learners**

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*The Making Learning Visible Project is a collaboration between research teams based at Project Zero and the Municipal Infant-toddler Centers and Preschools of Reggio Emilia. The views expressed in this book are those of these teams and should not be construed as representing the views of all members of Project Zero.*



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The titles in yellow refer to a series of "ministories" that weave through the book, which highlight children's learning processes and their sense of wonder and amazement, made visible by the sensitive and attentive eye of the teachers.

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Education will vary with the quality of life that prevails in a group.

– John Dewey, *Democracy and Education*

## Four Features of Learning in Groups

Mara Krechevsky  
and  
Ben Mardell

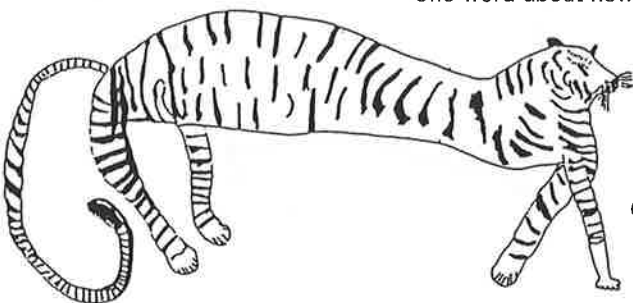
Much, if not most, of the learning that goes on in and out of schools happens through the interactions of groups. Indeed, children are almost always in groups when they are in school. But are these learning groups? In most American schools, the focus of virtually all assessment and most aspects of instruction is on promoting individual work and learning. Yet the desire to learn from and with others is so powerful that even in institutions that tend to isolate children, students still learn from and with one another. How can teachers support and deepen the quality of learning that occurs whenever individuals are together in groups?

It is not always easy to distinguish between group and individual learning. At first glance, it seems that American practice is more focused on the individual and Reggio practice more on the group. Many American teachers are comfortable with a view of children as independent discoverers and constructors of their own meanings. They often take an inherently group setting—school—and try to individualize it; each child works on an individual product. Yet even with this emphasis on individual children and individual products, the types of activities, available materials, and time frame for working are often the same for all children in the class; the implicit message is one of conformity. Although there is no collective or group goal, all individuals in the group are working on the same individual things.

In this chapter we introduce a conceptualization of group learning that provides a framework for understanding and nurturing individual and group learning in the classroom. We offer a definition of learning groups and describe four features that distinguish our notions of group learning from other conceptualizations. The features suggest ways to reconcile some of the dichotomies so prevalent in education today, including the belief that teaching is for adults and learning is for children; that documentation and assessment are separate from the teaching and learning process; that learning and teaching are cognitive, rather than emotional and aesthetic, acts; and that learning groups are concerned with addressing individual, not group, knowledge. In putting forth this view, we draw on the experiences of the children, teachers, and parents in the Reggio Emilia preschools and infant-toddler centers as rich examples of learning in groups in early childhood.

One word about how this chapter relates to the propositions and visual essays in the previous section: While the propositions document individual and group learning strategies, the features offered here are an attempt to highlight the four aspects of group learning that have emerged most strongly for us in the course of our research collaboration with our Reggio colleagues. Although other features

tiger



could be identified, we see these four as central to our view of group learning; without them, something important is lost. The features are one way to distinguish our conceptualization from other school-based notions of group learning, helping us determine the extent to which a group of individuals in school resembles a learning group. While the propositions can also be used in this way, they are the direct result of the pedagogical research of the Reggio educators. The propositions provide the visual and written documentation of how learning groups of young children and adults in Reggio classrooms form, function, and demonstrate understanding; the features are framed more generally with a view to understanding diverse learning contexts.

Our exploration of learning in groups is guided by two principles related to the nature of learning and the nature of groups. First, with regard to *learning*: Rather than reducing children's or adults' thinking and learning to discrete bits of information that can be produced via simple-answer questions, we are interested in the learning processes and outcomes involved in solving problems or creating products that are considered meaningful in a culture. This is in accord with Howard Gardner's definition of an intelligence as the ability to solve problems or fashion products that are valued in a culture or community.<sup>1</sup> We resist the tendency to simplify the complexity of either the individual's or the group's learning process or the content being learned. The type of learning in which we are interested engages students cognitively, emotionally, and aesthetically. It is situated in real-world problem solving that draws on critical and creative thinking as well as disciplinary knowledge and skills.

Second, by *group* we refer not only to what individuals learn by virtue of participating in a group, but also to a more distributed kind of learning that extends beyond the learning of any one person. Research suggests that we need to rethink our notions of human cognition as residing inside the heads of individuals and consider a view of knowledge as socially constructed and distributed among individuals, groups, and cultural tools and artifacts (such as books or computers).<sup>2</sup> We believe that participation in groups is key to the construction of individual learning. We also believe that group learning can lead to creating a community culture or collective knowledge that is larger than what any one individual knows.

We have defined a learning group as a *collection of persons who are emotionally, intellectually, and aesthetically engaged in solving problems, creating products, and making meaning—an assemblage in which each person learns autonomously and through the ways of learning of others*. Learning groups facilitate a kind of learning that is qualitatively different from that of individuals learning alone. Of course, even in groups individuals learn autonomously, constructing their personal understandings of the world. In this sense, all learning is individual. But when children and adults are in groups, they also learn from and with others. In groups we encounter new perspectives, strategies, and ways of thinking that enable us to learn from others. We also learn *with* others,

modifying, extending, clarifying, and enriching our own ideas and those of others. In putting forth this view of group learning, we draw on a long history of ideas about learning in groups ranging from studies on group processes in social psychology to current educational interest in cooperative and project-based learning. Although cognitive and developmental psychology have traditionally focused on the development and psychology of the individual, over the past few decades interest in the social and distributed nature of learning has increased dramatically. For example, according to Vygotsky's sociocultural perspective, development is inherently social.<sup>3</sup> Vygotsky maintained that all thought appears first on an interpersonal level, then on an intrapersonal level.<sup>4</sup> He believed that our ways of thinking are transformed internalizations of social interactions. The social nature of development reaches into all aspects of human experience. From birth most of us are guided into ways of thinking, feeling, and behaving by family, peers, and others. Even when ostensibly working alone, individuals rely on socially created tools and artifacts. In this way, all cognitive activity is bound to a social context.

Recent years have seen increasing interest of American educators in cooperative learning, which in the United States often takes the form of techniques used by teachers for organizing classroom activities.<sup>5</sup> It is primarily incorporated in elementary school classrooms above the first grade. Most of the research that looks at the effects of cooperative learning strategies focuses on the mastery of well-defined content or skills.<sup>6</sup> Typical cooperative learning techniques include using group rewards based on individual achievement, assigning particular roles or tasks to individual members of small groups of children, or peer tutoring. Teamwork skills such as building trust, managing conflict, and decision making are deemed crucial to the success of these efforts. While our conceptualization of group learning shares principles that underlie various forms of cooperative learning (for example, a commitment to providing experiences in which children can learn from and with one another), it differs from cooperative learning research and practice in a number of ways. Let us now describe the four features (see figure 2) that characterize our conceptualization of learning groups.

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figure 2

**The members of learning groups include adults as well as children.**

**Documenting children's learning processes helps to make learning visible and shapes the learning that takes place.**

**Members of learning groups are engaged in the emotional and aesthetic as well as the intellectual dimensions of learning.**

**The focus of learning in learning groups extends beyond the learning of individuals to create a collective body of knowledge.**

### 1. The members of learning groups include adults as well as children.

One way in which our view of group learning in school departs from others is by the inclusion of adults (parents, teachers, other school staff, community members) as members of the learning group. In most American schools, even when we engage students in group learning, we maintain a view of children as learners and adults as teachers. In many cooperative learning approaches, the adult's role is seen as that of "implementer." In an article on peer education, William Damon suggests: "The role of the adult supervisor in a peer collaboration group should be first to keep the children focused on the task at hand and second to review with the children what they have learned after the task is completed. Adults should not interject their own knowledge or opinions about tasks during children's group discussions."<sup>7</sup>

While we would agree that adults and children play different roles in a learning group, we believe that every member of a learning group engages in inquiry. All individuals in a school contribute to a culture of teaching and learning. Teachers, of course, bring to this culture a different background and set of skills than children. The teachers' role includes listening to and observing children, providing occasions for discovery and joy, and intervening at critical moments. By systematically observing and documenting children's work, teachers develop new ideas about teaching and learning. Curriculum resembles a journey, and topics of study become research projects. Rather than being seen as the sole or primary sources of information, teachers help children enlist the cognitive and emotional support of their peers. Teachers also serve as the group's memory, reminding children of their earlier work and comments.

In American schools we are all familiar with learning goals for students. Less commonly considered are learning goals for teachers that identify what they would like to learn from classroom experiences. Reggio teachers generate learning goals for themselves such as: How can we expand and deepen our understanding of children's construction of their knowledge and skills? What are the connections between the mental images recalled from memory, the verbal language, and the visual language? What are the tools that can elicit the most cognitive and emotional processes for children? The focus is on the act of learning. Teachers try to make learning visible and collect data that will inform the design of other kinds of learning experiences for children. Through books, exhibits, and other products, teachers share what they learn with other teachers in the same school, teachers from other schools, and other audiences.

Parents too can actively participate in this culture by contributing their expertise and support and helping to document children's work in the learning groups. For example, teachers at the Villetta School noticed at the start of the year that children were spending a great deal of time experimenting and playing with water.<sup>8</sup> Observing the children more closely and recording their conversations, the teachers realized that the children were creating theories and hypotheses about the movement of the water. The teachers



A parents' meeting



shared their observations with parents, who decided to elect a committee of "experts" to work on the hypotheses generated by the children. The committee designed and built a system of pumps and pipes so that the children could continue experimenting with water.

In learning groups, parents become interested not just in their own child's learning, but in learning and child development in general. Parents bring to learning groups their knowledge of their children, their educational hopes and values, and their competencies and interests. Parents in Reggio often generate their own research questions to investigate (for example, How do children celebrate birthdays at home and at school? What is the role of action figures in children's play?) and then share their findings with others.

Community members and organizations extend the learning environment beyond the walls of the classroom and connect children to the life of the community. Rather than simply bringing in community members for isolated, one-time visits, teachers and children draw on the community as additional members of the learning group who contribute to the ongoing research. When children at the Diana School decided they needed another table for their classroom, they suggested calling in a carpenter.<sup>9</sup> When the carpenter arrived, he explained that he needed dimensions from the children. The challenge to provide measurements for the table became the focus of investigation for a small group of children, who kept the rest of the class informed about their progress. The teachers focused on understanding and supporting the children's learning processes as they went about creating a system of measurement.



The carpenter with the children

## **2. Documenting children's learning processes helps to make learning visible and shapes the learning that takes place.**

At the heart of our conceptualization is the role of documentation and assessment in shaping the nature of individual and group learning and in making that learning visible. As education moves from a transmission model of knowledge to an inquiry orientation, documenting children's learning becomes a key tool for the learning of both teacher and children. Through documentation children and adults have the opportunity to revisit, individually and collectively, the work and activities they have planned and carried out. In many American classrooms engaged in cooperative learning, the separation between curriculum and assessment persists, and the assessment paradigm remains one of measurement and evaluation. Children are expected to master relatively well-defined skills or information, which can then be displayed and evaluated in measures that are designed to be quick, efficient, and "objective." The role of teachers as documenters of student thinking, activity, and learning is far too small a part of this model. Our conceptualization of group learning seeks to alter this situation fundamentally and promote assessment practices that involve teachers' observation and documentation skills.

Documentation makes children's ways of constructing knowledge—including the relational and emotional aspects—visible to both adults and children. Teachers share children's work and words with parents, they refer to children's conversations when they speak to them, and they put quotations from children's speech and samples of children's work on the walls. Teachers also generate and post their own reflections on a project or experience. Documenting children's learning is not about creating beautiful panels or displays, but about following and shaping the knowledge-building process. It allows teachers to deepen their understanding of children's strengths and interests, different languages or domains of knowledge, their own actions and pedagogical decisions, and the processes of learning.

Documenting children's learning can help create a collective memory for the group, allowing children to return to their thoughts and ideas and pursue them either individually or in groups. When children work on projects and products that are stored in personal places without opportunity for exchange and comparison of ideas and activities, the group remains merely a collection of individuals. We will see in the next chapter that portfolios, for example, are often considered personal collections of work. Making visible in the classroom images of learning and being together in a group fosters a sense of group identity and generates other possibilities for extending and deepening learning. Looking at earlier drawings and comments allows children to build on and critique their previous thoughts and hear reactions from their peers. Theories can be developed and modified. Documenting children's work in this way enables everyone involved to learn about a particular project and about children's learning processes more generally. Such documentation helps children tell the story of their own learning and sustains the continuity of their experience.

Further, the act of documenting changes teachers' understanding of what goes on in the classroom. It slows them down, encouraging them to reflect on and understand the deeper meaning and value of a learning experience. It forces them to compare what they thought they would observe to what really went on, and informs their decisions about where to go next. Documenting children's learning entails making decisions about the moments and experiences that are most meaningful to record. Rather than trying to tell the whole story of an experience or putting up the work of every child, teachers become selective about what to document. Instead of simply describing the experience of a learning group, this view of documentation involves a deeper analysis of the purposes behind it and behind the related learning processes and products. Since it is often through discussion with others that we become clearer about our beliefs and values, collaboration with colleagues becomes a particularly significant part of the process. Both Reggio educators and American teachers who have learned from the Reggio experience attest to the importance of documenting, studying, and collectively analyzing children's individual and group work for sharpening and deepening the focus of learning.<sup>10</sup>



Teachers discussing documentation

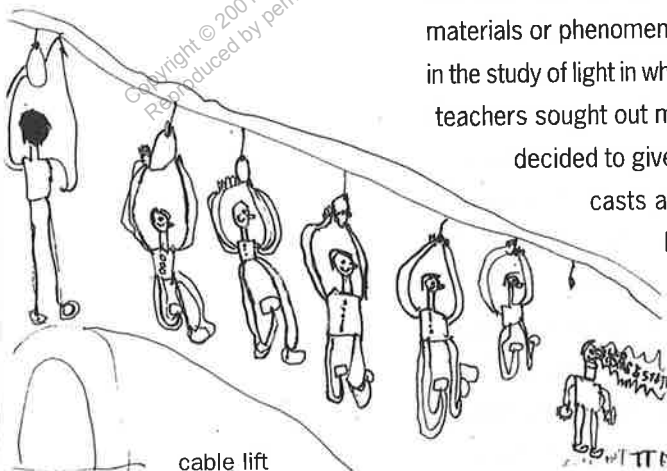
Documentation also contributes to children's own developing understanding of how they learn, and of how others learn. It offers them an opportunity for reflection, for evaluation of other children's theories and hypotheses, and for self-assessment. It provides a structured way for children to remember their own progress, knowledge, and doubts as well as those of others. As we have seen, Reggio educators frequently ask children to share with their friends or a teacher what they have learned in an activity or experience. A common question during work on a project is, "What can you do to remember what you did and communicate it to others?" Moreover, as children learn how to learn in groups, they come to rely as much on their peers and themselves as on the teacher for feedback and problem solving. Teachers are not seen as the only source of information. One by-product of this shift is that teachers can devote more time to documentation, or engage in extended interactions or conversations with one or more children, while the rest of the class continues to work on its own. Documenting children's work in this way sends a strong message that children's efforts and ideas are taken seriously.

### 3. Members of learning groups are engaged in the emotional and aesthetic as well as the intellectual dimensions of learning.

In our view, learning in groups—like all meaningful learning—should engage the emotions as well as the intellect. Many teachers, when choosing topics of study that meet the learning goals of their curriculum, try to take into account the interests of their students. Yet cognitive learning goals often remain unconnected to other forms of learning. Most approaches to cooperative learning involve learning basic skills, factual knowledge, and the application of basic algorithms.<sup>11</sup> In our view, children and adults in learning groups should be engaged in the emotional and aesthetic as well as the cognitive dimensions of learning.

Reggio educators consider the environment the "third educator." They often look to materials and the environment to see what processes they promote. They seek out materials or phenomena that will turn the ordinary into the extraordinary. For example, in the study of light in which children explored different objects projected on the overhead, teachers sought out materials that would charm, trick, and amuse the children. They decided to give them vellum, an architectural paper that looks transparent but casts an opaque shadow, and provide water in a bowl and in a plastic bottle to create unusual effects of fluidity and motion.

Often, before introducing a particular set of materials or tools into the classroom, Reggio educators investigate the objects themselves. They study the materials with an eye to the types of intellectual, emotional, and aesthetic processes potentially induced. For example, teachers might ask themselves, Do



cable lift

these materials promote a sense of wonder? Do they generate unexpected transformations or strong aesthetic effects? They believe that pleasure is aesthetic and can coordinate the actions of children. When children take pleasure in materials immersed in light, for example, the experience becomes precious to them. Reggio educators believe that scientific thought is advanced through this aesthetic dimension. As we saw in the last section, young children in Reggio seem to develop a sensitivity to an aesthetic of knowledge that enables them to choose among competing ideas and theories.

Teachers look for topics of study and projects that will be intellectually and emotionally stimulating for the adults as well. They nurture within themselves a sense of adventure and a willingness to take risks in following the varied paths of children's interests. Teachers experience the excitement of learning along with the children. Indeed, they may propose projects for which they themselves are not sure of the outcomes. In the "Dinosaur" project described by Rankin, the adults decided to challenge the children to draw a life-size dinosaur and find a way to hang it so that it would stand upright.<sup>12</sup> The teachers did not know if the children could succeed at this task; they based their proposal on the intensity of interest that children had exhibited—and the teachers had documented—in the size of dinosaurs.

Small groups are particularly effective for this kind of learning, typically involving no more than five or six children (see Proposition I). Most cooperative learning methods suggest four-person groups, though few studies have actually compared learning and interaction in small groups of different sizes.<sup>13</sup> Because of the small size, it is often possible to create groups of children who share high passion for a topic. Indeed, as we have noted, Reggio educators frequently set up initial explorations of a topic in which they can observe which children show the greatest interest and enthusiasm before forming a learning group.

When documenting children's activity, teachers maintain their multiple foci on the intellectual, emotional, and aesthetic aspects of learning. In studying and analyzing tape-recorded conversations, adults listen for the topics that stimulate the most interest and passion. In the "Landscapes of Light" project, teachers noticed that children used the overhead projector and materials in at least three ways. Some children told narratives with characters and plot based on surprise and aesthetic pleasure; others created performances of their own, using the beam of light as a stage; still others concentrated on making optical discoveries. This knowledge informed the opportunities teachers provided to extend and deepen children's learning and motivation. In this instance, they decided to welcome children and parents to school in the mornings by placing on the overhead a natural material such as a leaf, which generated a strong aesthetic effect. Over time, children began to bring in objects from home to place on the overhead. Teachers eventually projected a scenario of arranged objects on the overhead above





Images from a project on trees at the Diana School

the children's mattresses in the nap room.

Another way to think about this feature is that *what* a learning group learns is not separate from *how* the group learns (another false dichotomy). The way learning groups form and function is integrally related to what the group comes to understand. The process of working, feeling, and thinking together can be as important as the content of learning. Too often in the United States, even in classrooms where students engage in cooperative and project-based learning, the focus of the curriculum is on individual skill development. We do not believe that cognitive moments should be separated from other aspects of an experience. Carla Rinaldi refers to a research project motivated by the children's interest in a family of cats living on the school grounds as a process of research on "catness."<sup>14</sup> Rather than separating out bits of knowledge about "cats," the term "catness" suggests exploring the range of meanings we associate with cats, from cultural to emotional to scientific.

In a project on trees at the Diana School, children learned about trees in at least three ways: exploring them through the senses; close observation and representations of trees and parts of trees in different media; and conversations and drawings about various aspects of trees, including how they might feel and look in different situations.<sup>15</sup> To bring trees and children into even closer relationship, the adults proposed that the children adopt a tree. Significant attention was given to the scientific knowledge and aesthetic qualities of trees, as well as to children's feelings and attitudes about trees.

#### **4. The focus of learning in learning groups extends beyond the learning of individuals to create a collective body of knowledge.**

Learning groups, in our view, are much like scientific communities or scholarly disciplines in that they focus on building collective as well as individual knowledge. Most cooperative learning and other group learning techniques are seen primarily as instructional strategies that can help raise individual achievement. Even when collaborative learning refers to "give-and-take," it is usually give-and-take between children working on their own individual products and end results.<sup>16</sup> According to one well-known set of cooperative learning proponents, "the purpose of cooperative groups is to make each student a stronger individual... [S]tudents learn together how to perform even better individually."<sup>17</sup> Mixed-age grouping and peer consultation are other ways to allow teachers to give one-on-one attention to individual students.

While we acknowledge that learning is always individual, we think it is critical to consider the social construction and existence of knowledge as well. Learning in a group supports a quality of learning that is different from individual learning. A focus on collective understanding—requiring constant comparison, discussion, and modification of ideas—makes possible learning that is not accessible to individuals working alone. Individual ideas are immediately put in circulation for discussion with the group. Team sports

provide an instructive example. When individuals learn how to play together on a team, they need to learn how to coordinate their actions. Although what the players learn resides in their individual minds, the knowledge is by and large useless to them as individuals; their skills emerge only when they are playing with others on the team. In school, as in sports, it is important not to artificially separate individual from group learning. Each must be considered in the context of the other.

As we noted earlier, interdisciplinary research on situated learning and cognition suggests that we will understand more about human learning and development if we recognize the distributed nature of knowledge among both individuals and the tools and artifacts of a culture.<sup>18</sup> For example, Ann Brown and her colleagues have designed classroom environments in which a distributed network of expertise is created among all the learners in the community.<sup>19</sup> Marlene Scardamalia, Carl Bereiter, and their colleagues have put forth a model of knowledge-building communities in which individuals are dedicated to sharing and advancing the knowledge of the group.<sup>20</sup> In these classrooms the focus of learning goes beyond individual learning to the goal of advancing the body of knowledge itself. Rather than simply completing a series of discrete activities and school tasks, children and adults feel they are contributing to a larger, more meaningful whole, one they can share in and communicate to others.

As part of this process of generating collective knowledge, members of learning groups sometimes try to create what Reggio educators call "work in agreement." Children and adults might agree on which elements a project or product needs to share—say, the size of the clay figures in the group representation of a crowd or the role of public spaces in the creation of a city map. This agreement results not from a sense of conformity, but from a sense of aesthetic integrity. The group performance or product builds on the work of each individual; it is not antagonistic to it. Teachers play a delicate and complex role here; they may help to facilitate discussion or frame goals, serve as resources, or intervene when children get bogged down.

Many Americans view schools as a way to prepare children to be effective citizens by helping them acquire certain skills, key bodies of knowledge and ideas, and habits of mind. Preschools, in particular, do not receive much support or respect in our culture. They are regarded as serving a custodial function for socialization and play, or as places to develop pre-reading, pre-writing, and pre-arithmetic skills. In Reggio, schools—preprimary schools—are seen as places to document human learning, places where children's voices can be heard, respected, and shared with the wider community. Schools are based on a network of relationships. They do not simply prepare children for adult or later life; they are seen as essential to life. Schools in Reggio are considered privileged places where culture should be reproduced and developed. They are sites of educational research that are fundamental to our understanding of how knowledge is constructed. Teachers try to enact in daily life a permanent process of research that occurs whenever



Crowd made of paper

children and teachers work together in groups. Through systematic documentation of children's learning, teachers and children create the artifacts that become a school's culture. Schools do not merely reflect the surrounding culture, they re-elaborate and develop that culture. In this view, learning groups not only transmit culture and knowledge, they create them.

John Dewey claimed that education varies with the quality of life in a group. The work of the political scientist Robert Putnam suggests that the quality of our public—if not private—lives will vary with the groups of which we are members.<sup>21</sup> Putnam's work demonstrates the critical importance of social networks and civic engagement for the success of our social institutions and a democratic way of life. (In fact, Putnam points to northern Italy as an example of a community that works, having functioned successfully for seven centuries as a civil society.)<sup>22</sup> The experiences of the preschools and infant-toddler centers of Reggio Emilia challenge us to rethink our notions about the relationship between individual and group learning. As Carla Rinaldi says: "The intellectual and emotional learning which come about in and through the group create a quality of individual knowledge which is completely different. We not only learn how to be social, but we learn through this sociality, which leads us to become different individuals."<sup>23</sup> In the United States, the rhetoric and practice around groups is not aligned. Our future depends on our ability to provide children with opportunities to become "different individuals"—individuals who know how to listen, who acknowledge and respect diverse points of view, who work with others to solve problems, and who can interpret and understand the world in increasingly complex ways.

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