CHAPTER 1

Developmental Science and Early Education

An Introduction

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The productivity of any modern society rests heavily on the success of its educational system in preparing its children to become skilled and engaged adults. The major conceptual frameworks developed within developmental science in the early to mid-20th century serve today as the source of inspiration and knowledge for teachers and educators. Much of contemporary education is grounded in these frameworks, in particular those offered by Piaget, Dewey, and Vygotsky. However, in view of the remarkable progress made in recent decades, there is a need today to transfer more recent insights and to upgrade the knowledge base that informs educational practice. Recent research in developmental science has brought about profound changes in our understanding of the conditions that facilitate children's learning and development, demonstrating the fundamentally dynamic and relational nature of learning and development. Recent discoveries regarding brain development, memory, children's early mathematical abilities, and the crucial role of social interactions and use of cultural tools provide startling insights that, if translated into pedagogy, then have the potential of transforming instruction and improving outcomes for all children.

Although spectacular progress has been achieved in developmental science and neighboring disciplines, researchers working at the front lines of science do not always have the time or the incentives to think deeply about the implications of their work for educators, and to translate their ideas and findings into the working tools that can be used in educational practices. This handbook represents a modest contribution toward this much-needed translation. This volume is based on an assumption that basic developmental science has been engaged in theory development and empirical work that has relevance for educational practice. Strong disagreement with this assumption is rare but explicit application of developmental theory and research to questions related to curriculum, standards, pedagogy, and learning requires intentional, intensive, and

thoughtful analysis. The *Handbook*'s rationale is precisely to distill innovative ideas of potential educational relevance out of recent research and theories in developmental psychology and to communicate them to the teachers, policymakers, educators, and other professionals concerned with educating children. In a small way, efforts such as these link developmental scientists to the important public policy goal of bringing desperately needed improvements to the ways we educate our young children. Although early childhood education has been identified as a cost-effective investment that potentially benefits children, families, and society, the current system has many problems to be solved before it can realize its promise. In spite of our highest aspirations and substantial investment in pre-K to third grade (P–3) education, we still have a long ways to go in providing consistently high-quality programs as we expand pre-K and place more stringent demands for academic achievement in the early primary grades. The quality of many pre-K programs is disappointingly low. Pre-K programs appear to have difficulty incorporating the demands for cognitive and academic gains with the broader set of needs related to children's physical and social development, and family members' needs for support as they participate in the workforce (Clifford et al., 2005) Many pre-K and primary school programs are neither developmentally appropriate nor family-centered, and they lack effective transition practices and continuity between the grades. The sources of problems in this situation are many. They fall most often within the domains of curriculum, pedagogy, workforce preparation, training, and compensation.

Though deep and serious, these problems can be solved through careful but innovative thought and concerted action. One comprehensive approach to these problems is represented in the P–3 movement, of which the First School Initiative at the University of North Carolina Frank Porter Graham (FPG) Child Development Institute is an example. The seminar whose deliberations formed the basis for this handbook was designed to contribute to those initiatives by reviewing research in developmental science that might inform the conception and planning of First School, an innovative initiative to educate America's young children that requires a radical shift in thinking about how we should educate children ages 3 to 8. First School and P–3 are intended to provide templates for the reform of early educational structures, so that the multiple systems serving young children are integrated into a single system and located in a single setting that provides a seamless transition for children ages 3–8 from one level of learning to the next. This integration requires an organizational and curricular realignment of children's first school experience, with attention to how children vary and change during this developmentally active period. The P–3 movement emphasizes practices that are sensitive to individual developmental needs, and that provide appropriately rich and cognitively engaging curricula to foster childrens' intellectual, physical, and emotional development. Changing the organizational arrangement of early childhood education to join pre-K with K–3 schools is just a first step and is not sufficient by itself to achieve the aims of the P–3 movement. Deeper, more fundamental changes are needed to go to the heart of how schools conceive of their role, how they function, what they teach, and the commitment they have to address the needs of the most vulnerable children, who currently do not benefit as fully from school as they might. Thus, in addition to addressing the developmental needs of the student population as a whole, the P–3 movement must also generate specific ways to address the needs of populations that currently are not being well served in education. These populations include ethnic/minority group, second language learners, and children with special needs, and children from economically

disadvantaged households. First School and P–3 must also consider and develop ways to address the wide-ranging cultural and linguistic diversity that now characterizes public schools. To be successful, the design of First School and P–3 must incorporate strategies and processes that promote social inclusion of these diverse groups. To address these issues successfully means that First School and other P–3 efforts must address the broader issues of standards, curriculum, pedagogy, and professional development. These issues have presented significant challenges to schools and can be a source of difficulty at an organizational and interpersonal level. In the end, if the P–3 movement is successful, it will have integrated the best of the developmentally sensitive approaches of preschool with the more coherent and content-rich focus of early elementary education.

First School is not just a pipe dream or the starry-eyed imaginings of romantic fringe groups in education. It embodies a conception of early education that according to many sober observers of education has the potential to address many of the concerns raised about losing children and youth to underachievement and school dropout. Reform of early education along these lines is being considered by many and implemented in a few school districts around the country. In many parts of the United States we can find isolated examples of individual schools that have successfully melded pre-K and early elementary classrooms into a single school serving P–3 students in a single building, with the goal of using an integrated curriculum and developmentally sensitive pedagogy. If successful, the First School movement is likely to spawn prototypes of similar schools that combine early childhood and early elementary education, perhaps paving the way to widespread adoption of one of the most significant changes in public education since the initiation of kindergarten. (For more information about First School go to *www.fpg.unc.edu/~firstschool.*)

Integrating early education and K–12 education is intellectually and politically challenging. What is the need for the innovations proposed by First School? What problem is it intended to solve? The answers to these questions arise from the limitations seen in current approaches to pre-K and early elementary education, and in the gap between approaches used to serve these children with very similar developmental needs. Educators who work with children ages 3–5 often begin with different assumptions and adopt different methods than do educators who work with children ages 5–8, in spite of the striking continuity in issues affecting the education of children across this age range.

Great dismay has arisen among early childhood practitioners over the developmental appropriateness of elementary schools. The concern takes on immediacy in light of efforts to integrate and to make early childhood programs part of elementary school education. Practitioners fear that the procedures, curricula, and organization of K–12 education will be pushed down into preschool and replace the existing emphasis on developmentally appropriate practices with rigidly prescribed curricula and group instruction. The current chasm between early childhood and elementary education neither serves children well nor is it sustainable in the long run. Nevertheless, professionals on the early childhood side are often skeptical that current efforts to make pre-K a part of public elementary schools will result in a smooth transitions for both groups of children throughout their first school experience. Currently, the shift from developmentally appropriate, child-centered pre-K instruction to more formal didactic and curriculum-based K–1 teaching is often abrupt. In simple terms, early childhood professionals fear that the "gold standard" for pre-K classroom organization, curriculum, and pedagogy

will be kindergarten and first grade. This possibility is worrisome because kindergarten and first grade rely on curricula and standards that are downward extensions of higher grade curricula that utilize standardized tests, workbooks, ability grouping, and retention, and eschew child-centered practices that are considered appropriate to the developmental stage of 3- to 8-year-old children. This often results in competitive, overly academic environments, with curricula that fail to accommodate the variation of competencies that are often present among children of the same chronological age. Many early childhood practitioners feel that the push toward integration will result in loss of the developmentally appropriate practices that are so fundamental to the way they conceptualize teaching and learning.

The preparation of early childhood teachers has a strong focus on child development, which often sensitizes them to individual differences and the use of exploratory play in their work with children. Consequently, their grounding in theories of child development becomes integral to their professional identities, and they are committed to what is called "developmentally appropriate practice" (DAP). Often the DAP operating principle is that the child will indicate when he or she is ready to acquire some new skill. The working assumption is that until this revelation occurs, the child is incapable and will not learn that new skill, and attempts at direct instruction may be frustrating for the child and, in the end, futile. In this way, DAP may be a handicap because it focuses educators more on the limitations of children's unfolding capacity to acquire information than on what children understand and can learn. As a consequence, teachers may be more attuned to the errors in children's thinking than to the insights that these errors reveal about how children learn. Errors in children's thinking are perceived as a wall arresting progress rather than an opening to facilitate learning and development. Moreover, some early childhood teachers question the value and relevance of curriculum for pre-K when "curriculum" is defined as standardized content presented in an ordered sequence. As a consequence of the beliefs associated with DAP, teachers take an agnostic point of view and let children teach them about what they can know and learn through self-selection of activities and the display of interest; that is, in the absence of fixed notions about what children ought to learn, good teachers following DAP are more often responsive and react to children's invitations or inclinations toward knowledge development. This approach centers on process more than on content. DAP pedagogy often emphasizes the role of the child as active learner and co-constructor of knowledge. In this interactive approach to learning, the role of the teacher is to create settings that are organized and elicit active engagement because they are stimulating and responsive to children's interests and capabilities. The desired outcomes of this approach include thinking critically, working cooperatively, solving problems, and having fun in the process. The strong developmental emphasis can have the unintended consequence of focusing the teacher on what children are unable to do because ostensibly they have not yet developed specific competencies. The operating principle is that children are not ready, and they will let you know when they are ready, to learn. Children's effectiveness in communicating when they are ready to learn rests heavily on teachers' ability to observe and to detect nascent capabilities. However, the developmental lenses through which teachers observe young children may lead them to underestimate what children can know and learn. As a consequence, they may hesitate to stretch or to challenge children sufficiently. In this case, early childhood educators

avoid the danger of overwhelming children and demanding more than they can give, but they risk leaving children less stimulated and with fewer skills than they might otherwise have acquired. The danger is lower levels of skills development. Although preschools are beginning to adopt structured curricula developed by publishing companies to achieve these outcomes and to focus on literacy development, this is not yet the norm.

Whereas early childhood programs have traditionally lacked standards-based content, elementary school programs typically use curricula with defined content standards (e.g., in reading, language, math, social studies, science, and the arts) and rely on intentional instructional practices to convey that content (e.g., direct instruction, demonstration and modeling, cooperative learning, skills-based intervention, cognitively guided instruction and inquiry). As a consequence, effective teachers in the K–12 system must be well versed in subject-matter content intended to produce outcomes stated in the learning standards adopted by the state and local school district. This content focus is also reflected in the use of a specific curriculum, lesson plan, and instructional materials provided for teachers' use by the schools.

The approaches used by pre-K and K–12 educators have complementary strengths and corresponding limitations. Though sensitive to developmental and individual differences, early childhood professionals may have limited repertoires of content and methods for use in intentional instruction. More often than not, they lack specific content related, for example, to language, literacy, numeracy, or socioemotional development. Though often knowledgeable about multiple content areas and teaching approaches, elementary school teachers typically lack a developmental lens through which to examine students' readiness for and response to the methods used in curriculum-based work. Their curricular content and teaching methods are largely divorced from, and fail to draw upon, insights about variations, due to individual differences in learning styles and to children's developing capacities.

These differences in pedagogy and curriculum experienced by children as they make the transition from pre-K to elementary school pose difficult adjustment challenges for children and raise questions about whether each approach is doing the best it can for the children it serves. An important contribution to the concept of P–3 education would be to unite the best practices of early childhood and elementary education by bringing a developmental perspective to the content and instructional practices of early elementary education, and by specifying content and intentional pedagogy within the developmentally sensitive practices of early childhood experiences.

A central issue addressed by this handbook is the dilemma represented by the failure to connect basic research findings to educational practice and child outcomes. The divide between research and practice is especially wide for early childhood education. This chapter begins by arguing for a reconceptualization of early schooling, juxtaposing national data that document the burgeoning state-funded pre-K data showing the relatively low quality and isolation of these pre-K programs. The authors describe national efforts to rethink public schooling for children ages 3 to 8, focusing on the theme of uniting knowledge and practice from several fields (e.g., developmental psychology, early childhood education, elementary education) into a more effective blueprint for early schooling. Disappointing educational outcomes and the failure of research to inform practices have led policymakers and research funders to call for harvesting more

fully the fruits of basic research for improving P–12 education. Bridging the divide between research and practice is easier said than done. Successful integration requires proper framing of issues and engaging thoughtful people on both sides of the divide in a joint conversation about the implications of research for practice. Distilling useful information from developmental science requires that researchers answer several critical questions. What contributions can developmental science make to educational practice? What are reasonable expectations about what children know and can learn? How is learning best facilitated? How do individual differences moderate childrens' ability to learn and the best methods for teaching them? Creating a dialogue between researchers and educators around these issues is complicated by divergence in language, perspective, knowledge, experiences and worldviews. Often mediation is required by persons in the uneasy position of having a foot on each side of the divide. Many of the authors who contributed to this handbook occupy the space between developmental science and education, and understand the need to remain grounded in the realities of educating young children while they bring knowledge from developmental science to the issues of early childhood.

Critical Questions

How do we improve early childhood education? How can we infuse insights from developmental science into the design and implementation of early education curricula and pedagogy? Differences between early childhood education and K–12 education focus our understanding of children's capacity to learn and help us to appreciate individual differences and abilities, the role of development in the unfolding of children's skills, the appropriateness of educational standards or the content of curricula, the intentionality of pedagogy, and the adequacy of professional development of teachers.

Resolution of the many questions and dilemmas confronting early education may significantly impact the quality of children's early schooling. These critical issues and questions can be categorized into several themes or dimensions: children's capacity to learn, development over time, individual differences, curricula, pedagogy, assessment, professional development, student–teacher relationships, and parental involvement (see Table 1.1). These issues represent gaps in our knowledge, unresolved disagreements, and areas of misunderstanding that result in ill-conceived interventions, mistaken beliefs, half-baked ideas, and misapplication of theory or research. There are problems in each of these domains that continue to undermine or erode the effectiveness of early childhood education.

Development

With respect to the application of developmental theory, early childhood educators' claim that they use developmentally sensitive practices has been open to challenge. Traditional early childhood professionals believe that they are already addressing children's learning and thinking. An important area of concern is what teachers are taught or take away from developmental coursework about children's capacity to learn. There is much to suggest that we have largely underestimated the capacity of young children to develop

TABLE 1.1. Questions Confronting Early Childhood

Capacity to learn	What capabilities do children possess that enable them to acquire knowledge and skills related to literacy, mathematics, and science?
Development	What is developing during the ages 3–8? If we consider developmental changes and variations, what caveats must be observed in curriculum and instruction across the 3- to 8-year-old age span? What key theoretical constructs and empirical findings from developmental science provide a basis for curriculum content and instructional strategies? Do capabilities and limits vary across time? Is there an evolving set of biological, neurological, and experiential processes that interact to determine what children are capable of at a specific point in time?
Individual differences	How do capabilities and limits vary across individuals? When is differentiated classroom instruction warranted for gifted children and children with special needs? What are the special competencies and limitations of English language learners, and how can they be addressed in curriculum and instruction?
Academic standards	What are the critical competencies to be mastered in the area of language, literacy, numeracy, and socioemotional development, and what are the developmental opportunities for mastery during this 3- to 8-year-old age span? What skills should be expected and what knowledge should gained to produce desired outcomes and prepare children for later life? How do we infuse considerations of development into P–3 standards-based curriculum across this age span?
Curricula	Which content areas may be taught across the span of early childhood ages 3–8? Do the ideas and skills build on one another? Is there a specific sequence in which material should be covered? In what areas does the sequence of presentation matter for children's mastery?
Pedagogy	How do children learn, and how should they be taught? What practices help all children develop the knowledge, skills, and confidence necessary to be active citizens in a diverse and democratic society? What are the relative merits/effectiveness of team teaching, and looping (i.e., the same teacher teaches the same children for more than 1 year)? How do we foster and build on literacy, language, and numeracy skills in a systematic and integrated manner across the age span of 3 to 8 years? What instructional approaches might be beneficial for children ages 3–5? How can math and science instruction be introduced to 3- and 4-year-olds?
Assessment	What are the purposes of assessment, and how can assessments be designed to attain their ends? What role does assessment play in instruction?
Professional development	Who should teach? What do they need to know? How should they be prepared? What forms of support are needed to advance teachers' skills? How do we reach those who are teaching? How do we help teachers master effective new procedures?
Relationships	How important are teacher–child relationships to academic achievement? How do child–teacher and home–school relationships contribute to children's mastery of these critical competencies?
Family involvement	What is the proper role of parents in the education of young children? What is meaningful parent participation in schooling? What does participation look like, both in and out of school? How do schools facilitate/sustain family participation across ethnic and economically diverse groups?

competence in a variety of areas, particularly math and language, especially between ages 2 and 5. The problem is that their courses are often limited to a general treatment of Piagetian or Vygotskian ideas, and do not focus in a useful way on what this means for children's understanding and learning. Student teachers are often taught the fixed Piagetian stages of development but may be unaware of the critical role of interactions among prior knowledge, development, and learning. Preservice teachers often conclude that the theory presented in college course, even when it is up to date, is "academic" and irrelevant to what they need to understand and do in the classroom.

Individual Differences

Children are not all made from the same mold. Individual differences are critical to understand and to address. Some of these differences emerge from heritable traits, from experience and prior exposure to information; others emerge from concurrent life circumstances. These all need to be factored into pedagogy and in understanding how children learn. Many children, especially those growing up in poor households, lack experiences that might have prepared them for the language and discourse styles of schools. Children do not begin school on an equal footing. There is mounting evidence of an achievement gap between minority and majority student populations. A number of studies over the past decade have shown that this gap appears early—before children enter kindergarten. One of the most recent studies, which analyzed data from the Early Childhood Longitudinal Study—Kindergarten cohort (ECLS-K), looked at children's achievement scores in literacy and math as they began their kindergarten year. The researchers found that socioeconomic status (SES) accounted for a large proportion of the variance in children's scores—above that accounted for by race or family environment. However, the researchers noted that black and Hispanic children are more likely than white children to come from families in the lowest SES category. Being from one of these minority groups and coming from the lowest SES category accounted for one-half of a standard deviation in achievement scores (Lee & Burkam, 2002). Recognition of this problem was a primary motivation for public sponsored pre-K programs. It has led to the calls to provide high-quality early childhood education for all 3- and 4-year-olds. Although several countries already serve 3- and 4-year-olds in public school, this is now an uncommon practice in the United States, but it is expected to increase as part of the effort to improve the prospects of school success for children at risk of school failure. In this regard, schools face three challenges: (1) responsiveness to cultural and linguistic diversity in early childhood education; (2) inclusion of young learners with disabilities and children with widely varying abilities, ranging from major disabilities to exceptional potential; and (3) inclusion of children from diverse ethnic, linguistic, and racial backgrounds. In attempting to address this diversity and individual difference, educators are confronted with questions about how to think about ability grouping. Are we contributing to inequities, or is the price of separate instruction by ability groups an effective way to respond to and perhaps remedy individual differences? What do we know about the effects of ability grouping? Will the effects differ depending on the age or circumstances of the children?

A perennial problem is the extent to which each state's academic standards set by educational policymakers align with the curriculum and reflect what takes place in every classroom. Alignment is a goal, but few states would claim to have successfully

dealt with the issue of making the curriculum reflect the desired and mandated educational outcomes. A "curriculum" is a planned sequence of teaching–learning activity. Curriculum should focus on increased competence in multiple domains: cognitive, motor, behavioral, and socioemotional. The lack of alignment among standards, curricula, and instruction, and the differences across pre-K and K–12 education in each of them, may contribute to the difficulty some children experience in making the transition from pre-K to kindergarten.

Access to effective teaching is also an issue that needs attention. Effective teaching is often considered to comprise coherent development of ideas, supportive feedback, and use of multiple methods of instruction; ongoing assessment is used to individualize or modify instruction; and tasks are targeted to offer a moderate level of challenge for the child. All approaches to pedagogy should begin with the notion that children should be treated as active participants in shaping knowledge and in learning. Few school administrators and educational policymakers would quarrel with the observation that more and better professional development is need both for preservice and inservice teachers. Degrees, by themselves, do not appear to be a sufficient marker of teacher quality. Early and colleagues (2007) found no relationship between teachers' degrees and classroom quality or child academic outcomes. Classroom-relevant training, especially training that focuses on children's development, was related to the quality of instructional interactions in pre-K classrooms. Assessment may play an important role in improving academic outcomes, especially if it enables teachers to provide feedback to students and directs them toward alternative instructional approaches.

Relationships

Family involvement in children's education has come to mean many things. It is clear that conceptions of family involvement need to go beyond volunteering in the classroom or being active in school organizations. Research indicates that children enter school with significant differences in language and reading abilities, differences in home experiences and parental practices that may encourage development of these abilities. Efforts to encourage family involvement in children's education should focus on what parents do at home to nurture and support development of children's skills and involvement in academic activities. Questions remain about specific practices that seem to matter, and how to engage families with limited education and low English language proficiency in children's academic skills development.

Serious questions need to be addressed about how best to insinuate and integrate insights from these advances into educational policy and practice. Questions can be raised about the extent to which development reflects standards set for early childhood education. To what extent do current curricula reflect recent insights from research on brain development and children's thinking, learning, and memory? What does developmental science have to offer with respect to decisions that teachers and curriculum developers make about what to teach children, about the sequence and timing in teaching new skills?

We do not want to overpromise or to be overzealous in our claims about the value of developmental science and its ability to address all the issues facing early education. Clearly, there are some aspects of early education that developmental science has not addressed, and areas that, even when addressed, provide incomplete answers.

What Developmental Science and Early Education Have to Offer to Each Other

As developmental psychology and educational research have developed, an unfortunate division of labor between psychologists and educational researchers has ill-served both our understanding of the nature and limits of child development and our efforts to promote children's healthy cognitive growth. The idea that development and teaching (broadly construed) are inherently bound up in each other is not new, nor is the complaint that researchers have failed to consider learning and development in synchrony. As far back as 1930, Vygotsky (1930/1978) argued that one cannot understand teaching, learning, or development without understanding the relations among them.

Yet the interdependence among developmental processes, learning, and the environmental factors that may promote them is something that is still largely honored in the breach. If, for example, one looks at developmental journal articles on children's literacy or mathematical development, it is rare to find any description of the educational practices of the schools and preschools that children attend. It is also still rare in studies of teachers' thinking and teaching practices to find data on how students interpret those practices or citations about the effects of the relevant literature on student thinking.

The tendency of researchers to focus on development *or* learning *or* educational practices has led to educational advice that leans heavily on one or another of these isolated bodies of research. The titles and to some extent the text of books by developmental researchers (e.g., *The Scientist in the Crib* by Gopnik, Meltzoff, & Kuhl, 1999) have promoted an image of the heroic child who is the author of his or her own development. In some extreme cases this has led to advice such as the following: "Children at different stages cannot learn the same content. They cannot learn about number, for example, until they reach the concrete operational stage" (Copeland, 1984, p. 12).

Yet there are some very encouraging signs that researchers are moving beyond a conceptually suspect division of labor between developmental and educational research, and that these steps toward integration lead to findings that are both theoretically rich and of direct practical significance. One need look no further than this volume to see examples of this emerging synthesis. For example, Siegler (Chapter 19, this volume) has shown that a very brief experience with a board game can produce a massive increase in children's understanding of the magnitude of cardinal numbers, a key insight that not all children bring to school. Because school entry-level mathematical achievement is a strong predictor of later academic success (Duncan et al., 2007) and because this early understanding is associated with social class, research such as Siegler's holds great promise for mitigating some of the massive and increasing achievement gaps related to ethnicity and social class.

The First School provides a key way to help children over a major social threshold, that between "preschool" and "school." It can also help to provide a needed intellectual focus that will both enrich developmental science and make it more useful to society. By understanding the myriad ways in which children slip in moving from home and informal settings to school, and how schools and other social influences can help to ensure a successful transition, developmental science is broadening its scope, from an early focus on the endogenous growth of heroic children to a deeper understanding of how young children traverse the social webs that help them weave their own intellectual development.

Developmental science has much to bring to this partnership. We have a long tradition of taking children's thinking seriously, and understanding the ways in which children may reason consistently and coherently yet reach different conclusions than do adults. Vosniadou's work (Chapter 24, this volume) provides a good example. Vosniadou and Brewer (1992) reported that some children reconcile what they hear about "the Earth" (a blue globe floating in space) with their daily experience of a flat planet by postulating two entities: "the world" where they live, and "the Earth" that is in space. This can be demonstrated by asking them to point to "the Earth" (children with this view will point upward). Only by taking children's thinking seriously will we understand the misconceptions they demonstrate. Only by attending as well to the content and contexts in which they learn about the world will we be able to come up with a deep and helpful understanding of the evolution of children's thinking. The chapters in this volume provide a great illustration of the intellectual and practical promise of this new synthesis.

As a final note, chapters in this handbook are organized into five sections around (1) a general introduction to the theory, context, and processes of early education; (2) brain functioning and learning; (3) socioemotional functioning; (4) language and literacy; and (5) mathematics and science. It reflects the ideas and insight emanating from interactions among developmental researchers and participants in the SRCD-FPG seminar on Developmental Science and Early Schooling. Chapters present developmental research in ways that point to implications for the processes involved in early childhood education, including learning, teaching, teacher preparation and development, and the design of curricula and instructional methods.

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