1

Introduction: Rethinking the Role of Psychology in Education

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We are not the first generation of scholars to concern ourselves with the implications of a new understanding of human development for educational theory and practice. Progressivism with its concern for child-centered education became a dominant theme early in the twentieth century and has fueled a passion for developmental psychology as well as a deep respect for the role of the school in promoting that development, a development that continues into the present (Lagemann, 1989). Dewey's influential books—including *The child and the curriculum* (1902/1956), *Experience and education* (1938/1972), and *Art as experience* (1934/1958)—while both reporting and fostering educational reforms (Cremin, 1964), encouraged us to see knowledge and experience from the child's point of view. More recent writings in that tradition—including Bruner's *The process of education* (1960), Donaldson's *Children's minds* (1978), and Gardner's *The unschooled mind* (1991)—all called for and demonstrated the possibility of a new, more humane education based on a respect for children's knowledge, interest, ability and integrity—in a word, for their conscious experience.

But perhaps we are the first generation of scholars to recognize the limitations and excesses that good beginnings sometimes leave in their wake (Gillham, 1980). Child-centered education never made an easy peace with the knowledge and skills that adults assumed to be the end product of educational experience. Furthermore, while most would agree that schools are operated in the interests of children, parents and the larger culture have an investment as well and it was never clear how to adjudicate those interests. Indeed, a newly emerging understanding of cultural diversity has made it increasingly difficult to see education as a means for achieving a single common cultural goal. Finally, it has become clear that the sciences designed to assist children in their development have become means of classifying children into categories that are then used to justify and legitimize poor performance rather than improve it. We have become increasingly self-conscious about the uses and implications of our theories and to recognize that poor theories are not merely false but harmful.

It is therefore inappropriate to merely chart "advances" in the study of human

development with the assumption that further discoveries along the same lines will be helpful to all the variety of interests served by the school. Rather it is time to reassess the very nature of schooling and the role that the study of human development has played, and may profitably play, in the education of children. While we recognize that education alone cannot address the more fundamental social problems of poverty, justice, violence, cultural dislocation, and identity, education can play a direct role in the advancement of understanding of the world, of others, and of oneself, and those understandings at least play an indirect part in solving the larger social problems. The contributions to this volume are all directed to the enterprise of rethinking the relations between the study of human development and the nature and improvement of that institution designed explicitly to further it—namely, the school.

This volume sets out three, potentially revolutionary, changes in our understanding of education and human development; these three perspectives make up the three sections of the volume.

Section I. This section presents a new understanding of how psychology relates to pedagogy. Psychology's early promise was that of classifying students on the basis of traits so that appropriate social roles could be assigned to them and to a lesser extent so that instruction could be designed to meet their needs. The first function was an overwhelming success, the last a major disappointment. The classification of children on the basis of traits became a self-fulfilling prediction. The second function, of greater appeal to the child-centered movement, was that initiated by Piaget, who showed that cognitive stages rather than enduring traits determine what can be learned, and to a lesser extent by Vygotsky, who showed that neither trait nor stage determined what could be learned but rather what was appropriately taught. The promise of those views is far from exhausted. However, in their place we have tried to set out new ways of examining the relation between psychological theory and educational practice.

In the first part of Section I we examine the ways in which pedagogical practices of teachers are premised on the assumptions about the mind, knowledge, and consciousness of the learner. Forms of pedagogy are built upon certain understandings or assumptions about the psychology of the learner; conversely, psychological assumptions about mind, knowledge, and ability play into and recruit certain forms of pedagogy. David Olson and Jerome Bruner spell out the relations between the implicit "folk psychology" of a culture or a subculture and the educational practices, the "folk pedagogy" adopted by that culture. Howard Gardner, Bruce Torff, and Thomas Hatch reexamine the assumptions of progressivism in the light of current knowledge of human development. Maxine Greene examines the nature of experience and learning by means of a rereading of Dewey's classic *Art as Experience*. Robbie Case examines how shifting perspectives in the theory of human development have brought with them important alterations in pedagogy. Barbara Beatty examines the historical relations between psychological theory and the educational practice of the progressive movement.

The second part of Section I is concerned with how psychological theory has

misguided educational theory and practice and suggests more appropriate forms of analysis. Keith and Paula Stanovich show the conceptual poverty and counterproductive effects of the concept of "learning disabilities." Rita Watson reexamines the uses and misuses of the concept of "readiness" in early education. Lowry Hemphill and Catherine Snow argue that the child-centered approach to literacy exemplified by "whole-language" theory fails to account for the distinctive properties of written language. Marie Clay sets out ways to accommodate diversity in early literacy learning without simply perpetuating it. Gunther Kress examines the nature of writing and the transformation from sequential to hierarchical organization of ideas in learning to write. Keith Oatley and Seema Nundy examine the role of emotions in educational theory and practice.

Section II This section examines the insight that education is what in fact makes culture possible. Schooling is just one of the means by which cultures are created and transmitted. To understand human development and education, we must examine the cognitive and social conditions that allow the formation, transformation, and transmission of culture. Elisabetta Visalberghi and Dorothy Fragaszy examine the biological roots of social imitation and the importance of the recognition of intention for any growth of culture. David and Ann Premack trace the origins of culture to the peculiarly human ability to understand inability and ignorance in others. That recognition invites pedagogical initiatives and, in some cultures, those initiatives take the form of such institutions as schools. Margaret Donaldson shows how child-centered notions can lead us to overlook the importance of adult perspectives on experience, especially in the area of the development of emotions and values. Jacqueline Goodnow examines alternative views of learning, learning not just what to know but what may be systematically ignored.

In the second part of Section II the critical relation between culture and education is examined. Ann Kruger and Michael Tomasello extend their important work on the relations between models of mind and models of teaching, focusing primarily on "instructed learning." Barbara Rogoff, Eugene Matusov, and Cynthia White show how models of pedagogy and learning shift when classrooms are thought of not as adult-centered or child-centered institutions but rather as communities of learners. James Wertsch and William Penuel extend this argument by examining the relations between models of communication and models of pedagogy. Carol Feldman and David Kalmar consider how the genres of literature provide models for the interpretive cognitions of readers. And Daniel Keating considers the development of habits of mind that are called for by a "learning society."

Section III This section explores a new conception of just what it is to know, to learn, and to understand, and the role of traditional subject matter disciplines in the advancement of human understanding. Current conceptions make greater allowance for the role of beliefs, hypotheses, intuitions, and preconceptions as well as for the role of particular forms of discourse and particular subject matters in growth and development. Forms of knowledge are not all the same and special efforts are required if children's understandings in such domains as physics,

mathematics, biology, and history are to be advanced. Carl Bereiter and Marlene Scardamalia offer a new perspective on knowledge and its acquisition—a new epistemology for a new education. Kieran Egan advances a new account of the growth of understanding across four historical and developmental stages that he describes as mythic, heroic, romantic, and ironic. Ference Marton and Shirley Booth bring a phenomenological analysis to the learner's experience of learning. Ingrid Pramling shows that young children's understanding of their own learning is quite sophisticated but frequently at odds with that assumed by their teachers—a discrepancy that severely limits the impact of teaching. Janet Astington and Jan Pelletier show how teachers' assumptions about the minds of their learners influence both the kind of pedagogical moves they make and the extent to which they employ a metacognitive language, a language for talking about the mind.

The second part of Section III addresses the theme that development is as much a product of education as a precondition for it. In particular it addresses the relation between the implicit theories held by children and the explicit content of various disciplined forms of knowledge. Frank Keil and Chana Silberstein examine how schooling alters the implicit theoretical knowledge that children bring to the classroom. Scott Atran examines the biological knowledge of ordinary "folk" and the impact of scientific theory on that knowledge. Giyoo Hatano and Kayoko Inagaki examine the effects of different cultures on the understanding of biology. Andrea diSessa examines recent research and theory in the learning and teaching of physics. Magdalene Lampert, Peggy Rittenhouse, and Carol Crumbaugh examine the role of children's discourse in the advance of their mathematical understandings. And Peter Seixas sets out the major considerations involved in developing a mature understanding of history.

Four more general perspectives run through the volume as a whole. First, the study of human development has recently taken a turn toward a more "first-person" point of view, how the world appears to children themselves, a view that allows us to recognize that children, too, have an understanding of the physical, biological, and social worlds as well as some epistemological understandings of what it is to know, think, believe, desire, and intend as well as what it is to learn, remember, forget, and understand. Older psychologies of "abilities," "potentials," "skills," and "knowledge" are now seen as providing too restricted access to the actual beliefs and intentions, understandings and misunderstandings of the child. The latter have become the central concern of the new pedagogies.

Second, there is currently a recognition that a new approach to children's knowledge and beliefs implies, indeed requires, not only a new pedagogy but also a new conception of the classroom. Classrooms can no longer be seen merely as locations where information is transferred from adult to child but rather as sites for "collaborative discourse" or as "communities of learners" in which genuine social discourse can take place—beliefs can be expressed, criticized, revised and shared—rather than merely replaced by the authoritative teacher. This theme is explicitly developed in Section B of Part II, but appears as well in papers by Case, Kress, Marton and Booth, Pramling, Astington and Pelletier, and Lampert, Rittenhouse, and Crumbaugh.

Third, a new understanding of mind as composed of intersubjectively held beliefs and intentions allows a new level of mutuality between the explanations offered for success and failure by the teacher and those offered or accepted by the learner. Far from alienating children, this new psychology allows children and teachers to share an understanding of learning and thinking, to hold the same theories, and to share the same language. The teacher's epistemologies are directly linked to children's metacognitions. No longer are children to be treated as an entomologist treats a colony of ants, regarding them as an alien species to be studied from the outside, but as members of a mutually comprehensible culture. Fourth, that psychology, when mastered by the learner, may provide just the tools children need to manage their own learning in a self-conscious, deliberate and reflective way. Children's understanding of their own thoughts, beliefs, and theories as well as the grounds for adopting, holding, or rejecting them, and the means for sharing them, is just the understanding they need for conducting the kind of systematic, scientific thinking so valued by the larger culture. This is a genuinely new and promising role for a psychology of teaching and learning.

This book thus reflects what we take to be the central problems of our discipline, including the nature of knowledge, of knowing, of learning, of thinking, and above all of the ways in which culture is accumulated and transmitted to the young. Consequently, many of the traditional issues that have dominated theory in psychology and education have either been abandoned or reconstrued. These include such topics as the relation between heredity and environment, theories of mental abilities, theories of learning and transfer, theories of readiness, trait theories that distinguish so-called "types" of children and their "learning styles," and theories that attempt to specify variables that predict the outcomes of schooling. Even the more objective "cognitive processes" have yielded pride of place to a concern with children's beliefs, goals, plans, and values and the ways in which educators can understand, address, and ultimately, share them.

If we were to simplify our enterprise as a whole we would emphasize two principles: an internalist perspective on learning and a social perspective on theory formation. By the first, we mean that the theories of human development considered herein have taken on an increasingly internalist or insider's view of thinking, learning, and knowing. Whereas externalist theories focus on what an adult can do to foster learning, thereby making up the bulk of traditional educational psychology, internalist theories focus on what the child can do, what the child thinks he or she is doing, and how learning and teaching can be premised on those intentional states.

The second, the social perspective, is that a new degree of common understanding or intersubjectivity may be found not only between children but also between theorist, whether psychologist or pedagogue, and child subject. Externalist theorists, as mentioned, regard children as an entomologist would regard a colony of ants; there is no assumption that the subjects see themselves in the same terms that the theorist does. The psychologist who tests a child and files a confidential report unavailable to either the child or parent is, we suggest, to be set aside in favor of the psychologist who applies to children the same theories and

understanding that children will come to apply to themselves. Hence this new psychology creates the genuine possibility of constructing psychological theories that are as useful for children themselves in organizing their learning and managing their lives as they are for the adults that work with them. Rethinking the role of developmental psychology in educational practices will require new conceptions not only of the child as an intentional being but of knowledge as "man-made," the product of the elaboration of shared beliefs and shared frameworks for understanding.

This new perspective on the development of mind, then, may offer an improved vantage point from which to reexamine our classical assumptions about education and human development and to advance some principles to guide research and practice in the psychology of education for the next century. That is our purpose here.

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