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Edited by Alex Kozulin, Boris Gindis, Vladimir S. Ageyev and Suzanne M. Miller

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Introduction

Sociocultural Theory and Education: Students, Teachers, and Knowledge

Alex Kozulin, Boris Gindis, Vladimir S. Ageyev,
and Suzanne M. Miller

What are the differences among American, German, and Japanese classrooms? If we take as a cue the anecdote told by Stiegler and Hiebert (1999) in their book *The Teaching Gap*, in a Japanese classroom there are students and there is knowledge and the teacher serves as a mediator between them. In a German classroom there are also knowledge and students, but teachers perceive this knowledge as their property and dispense it to students as they think best. In the American classroom there are teachers and there are students, but the status of knowledge is uncertain.

In this book we are offering a perspective that is different from those mentioned, yet poses the same fundamental question of the relationships among students, teachers, and knowledge. Our perspective is grounded in the theory of Lev Vygotsky (1896–1934), whose ideas turned out to be instrumental in shaping the learning processes in a growing number of classrooms in Russia, Europe, and the United States. At the heart of Vygotsky's theory lies the understanding of human cognition and learning as social and cultural rather than individual phenomena. During his tragically short lifetime Vygotsky developed this central thesis in a variety of areas including the theory of child development and educational psychology. He explored relationships between language and thought, instruction and development, everyday and academic concept formation, and a host of others. For a number of decades his theory inspired only a relatively small group of followers in Russia and Eastern Europe. And yet with the passage of time instead of disappearing from the scientific and educational horizon, Vygotsky's theory began attracting more and more attention in different countries.

What is the secret of the vitality of Vygotskian ideas? What causes contemporary Vygotskians to continue arguing about concepts and hypotheses first advanced in the 1920s? Returning to the opening anecdote we may suggest that instead of offering a definitive model, Vygotsky prompts us to inquire into the nature of knowledge used in the classroom, for example,

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knowledge as information versus knowledge as concept formation. His theory makes us aware of our vision of students, for example, children defined by their age and IQ versus culturally and socially situated learners. It forces us to formulate our ideal of a teacher, for example, role model versus source of knowledge versus mediator, and so on. Such an inquiry does not produce educational prescriptions or recipes. What we present here is a collective dialogue of researchers-cum-practitioners from different countries concerned with deeper understanding of social and cultural underpinnings of the modern classroom.

Each of us has “discovered” Vygotsky’s theory in his or her own way. Some of the authors studied in Russia and acquired Vygotsky’s theory directly from people who knew Vygotsky and worked with him. Other authors became initiated by reading translations of Vygotsky’s works and applying his ideas in sociocultural contexts very different from those in which these ideas were originally conceived. As a result, the theme of cultural diversity in understanding and applying Vygotsky’s theory becomes a strong leitmotif of the entire volume.

Our aim is to present all major concepts of Vygotskian theory of learning and development, explore the transformation and adaptation of these concepts to different educational frameworks, review research on specific classroom applications of sociocultural ideas, and attend to the diversity of learners and learning situations. The book has four clearly defined parts: Part I, Concepts and Paradigms; Part II, Development and Learning; Part III, Classroom Applications; Part IV, Diverse Learners and Contexts of Education.

Part I covers such central concepts of Vygotskian theory as psychological tools, mediation, learning activity, zone of proximal development, and scientific and everyday concepts. One reason for the delayed recognition of Vygotsky’s theory is that it offered answers to the questions only recently formulated in Western psychology and education. One of these is the question of the agency of learning. For a long time it seemed obvious that an individual learner constituted a natural agency of learning. More recently this “obvious” interpretation received a critical reappraisal partly prompted by the spectacular success of nonindividualistic learning models prevalent in Far Eastern societies and partly by the failure of more radical individualistic approaches. Unlike the individualistic theory of learning, the Vygotskian approach emphasizes the importance of sociocultural forces in shaping the situation of a child’s development and learning and points to the crucial role played by parents, teachers, peers, and the community in defining the types of interaction occurring between children and their environments. As a result, the “obvious” individualistic identification of the agency of learning was challenged. Two concepts emerged as central in redefining the agency of learning: mediation and psychological tools. The concept of mediation emphasizes the role played by human and symbolic

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intermediaries placed between the individual learner and the material to be learned. Psychological tools are those symbolic systems specific for a given culture that when internalized by individual learners become their inner cognitive tools. Beyond their theoretical role the concepts of mediation and psychological tools also have an important applied function, serving as a basis for a number of applied programs offering new techniques for the enhancement of students' cognitive functions, development of metacognition, and integration of cognitive elements into instructional practice. The chapter by Alex Kozulin provides a systematic comparison of the Vygotskian approach to other theories of mediation, such as Feuerstein's theory of mediated learning experience. The complementary nature of symbolic and human mediators is discussed, as well as the question of which elements of mediation are universal and which are socioculturally specific. Content-based cognitive education programs are contrasted with cognitive programs that are content-neutral.

Vygotsky's notion of the zone of proximal development (ZPD) became the most popular of Vygotskian concepts used in contemporary educational theory, and yet it remains rather poorly understood. The problematic nature of ZPD can be explained by the fact that Vygotsky used this concept in three different contexts. In the developmental context ZPD is used for explaining the emerging psychological functions of the child. In the applied context ZPD explains the difference between the child's individual and aided performances, both in situations of assessment and in classroom learning. Finally, ZPD is used as a metaphoric "space" where everyday concepts of the child meet "scientific" concepts provided by teachers or other mediators of learning.

The chapter by Seth Chaiklin provides a systematic analysis of Vygotsky's original writings on ZPD, as well as the existing secondary research. The historical discussion of Vygotsky's concept emphasizes the metaphorical quality of the concept, and therefore the possibility of applying the concept to a wide range of phenomena from learning a specific concept to developing capabilities that may take months or years (e.g., professional training). Furthermore, the concept of ZPD can be applied to groups as well as individuals. ZPD is often defined as existing only in the interaction between children and others, and in this way a common misunderstanding of ZPD as a property of the child is revealed. It is also argued that the true meaning of ZPD can be understood only if it is taken in the broader context of Vygotsky's theory of child development and learning.

Although the notion of ZPD has been a success with American readers, the idea of students' scientific concepts as differing in principle from their everyday ones is still taking its first steps in American education. In his chapter Yuriy V. Karpov demonstrates how this original idea of Vygotsky's has been elaborated by Russian psychologists and educators into two different types of learning. These are *empirical learning*, which results in

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students' acquisition of spontaneous concepts, and *theoretical learning*, which results in their acquisition of scientific concepts. The results of more than 30 years of research activity by Russian Vygotskians have demonstrated the numerous advantages of theoretical learning over empirical learning for the development of students' learning skills and cognitive development. The notion of two types of learning (empirical and theoretical) can serve as a powerful tool for the analysis of different approaches to instruction. The analysis shows that the traditional system of school instruction promotes empirical learning. Surprisingly enough, some of the innovative approaches in American education that have been developed to overcome the shortcomings of the traditional system of school instruction promote empirical learning as well.

The chapter by Carol S. Lidz and Boris Gindis focuses on current practices in the application of ZPD as a basis for dynamic assessment (DA) of learning potential. They show that this methodology capitalizes on the cultural context for children's development of higher mental processes and the mediating role of adults serving as experienced collaborators to create ZPDs in their interactions with children. Whereas traditional approaches to assessment offer information about "yesterday's" functioning and provide limited information that is useful for planning for the future, DA simulates the process of development in the planned creation of ZPD that represents the intent of a more experienced collaborator to elicit information that bridges the "yesterday" of learners with their potential for "tomorrow." In this way, DA connects assessment with intervention with the intention of facilitating the learner's movement to the next higher level of functioning. The chapter contends that "test-intervene-retest" procedures, known as DA, with their focus on learning processes, cognitive modifiability, responsiveness to an adult's mediation, and amenability to instructions and guidance, are particularly suited for individuals who require individualized learning experiences, such as children with special needs and learners with atypical educational backgrounds. Vygotsky's idea of evaluation in the developmental and sociocultural context that results in effective remediation is examined through practical creation of ZPD within an assessment situation.

One of the innovative contributions made by Vygotsky was his idea that our sense of the world is shaped by symbolic tools acquired in the course of education and learning. He understood intellectual development in terms of intellectual tools, such as language, that we accumulate as we grow up in a society and that mediate the kind of understanding that we can form or construct. Though symbolic tools can be of a different nature, language in its different forms undoubtedly constitutes the major symbolic tool appropriated by children that shapes their understanding of the world. In their chapter Kieran Egan and Natalia Gajdamaschko argue that both on a historical and on an individual plane we can discern the successive development

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of oral language, literacy, theoretical abstractions, and self-conscious reflection about the language one uses. Vygotsky also perceptively observed that language forms do not replace one another but coexist in the human mind; similarly new forms of understanding do not dislodge the previous ones but complement them. Literacy in its different forms not only supports logicomathematical thinking but also provides tools for students' imagination and emotional development. The theoretical perspective presented here proposes the recognition of the educational process as an acquisition of symbolic tools that make the different forms of understanding possible. The chapter also provides examples of how to shape classroom lessons in accord with these principles.

Part II of the book focuses on Vygotsky's concepts of development and learning and their neo-Vygotskian interpretations. Vygotsky strongly believed in the close relationship between learning and development and in the sociocultural nature of both. He proposed that a child's development depends on the interaction between a child's individual maturation and a system of symbolic tools and activities that the child appropriates from his or her sociocultural environment. Learning in its systematic, organized, and intentional form appears in sociocultural theory as a driving force of development, as a consequence rather than a premise of learning experiences. Such a reversal from a dominant Piagetian position allows for new interpretations of the relationships between cognitive development and education; it also opens new perspectives on atypical development (delays and disabilities). Vygotsky discovered the systemic interrelationships and interdependencies between development and learning/teaching through examining the origins and phases of child development and through analyzing the qualitative transformations in a child's development.

Holbrook Mahn's chapter explores Vygotsky's original concepts of stages and crises in childhood as well as the dynamics of the relationships between teaching/learning processes and development. Vygotsky considered development as a process marked by qualitative transformations. He investigated both the functions that had matured and those emergent functions that just were coming into existence. Development, according to Vygotsky, is marked by periods of stability transitioning into qualitative transformations ("crises") in which there are both integration and disintegration of mental functions and structures. As shown by Holbrook Mahn, Vygotsky's examination of child development relied heavily on his theory of concept formation, which helped him explain the structural and functional transformations that occur when language is acquired, when children start formal education, and when children enter adolescence.

Learning and development of preschool children from the Vygotskian perspective are elaborated in the chapter by Elena Bodrova and Deborah J. Leong. This complex issue is analyzed in the context of the changing social situation of development accompanying the onset of formal school

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instruction. With the changes in society that have occurred since Vygotsky's time, one could expect certain changes in the meaning of preschool years for an individual's development; therefore, the authors examine the relevance of Vygotsky's ideas in the changing social context. In addition to the ideas expressed by Vygotsky himself (e.g., the role of self-regulatory inner speech in cognitive development and the role of play in creating a child's Zone of Proximal Development), the later contributions of Vygotsky's colleagues and students are critically discussed.

The authors describe the relationships that exist between fundamental theoretical concepts such as psychological tools and higher mental functions and the specific applications of these concepts to the development of preschool children in the works of the prominent Russian Vygotskians D. Elkonin, P. Galperin, A. Zaporozhets, and L. Venger. Of utmost interest, the authors' current research in the United States is used to illustrate the application of these ideas and their efficacy in promoting the development of preschool children in formal settings (e.g., Head Start classrooms) as well in informal adult-child interactions taking place in the family.

In her chapter Galina Zuckerman elaborates further the same topic of post-Vygotskian development of sociocultural theory, concentrating on one of the most important contributions made by Russian neo-Vygotskians (specifically, Daniel Elkonin and Vasilii Davydov), namely, their development of the notion of learning activity. The neo-Vygotskian theory distinguishes specially designed learning activity from learning in a generic sense. Learning in a generic sense is a part of many human activities, such as play, practical activity, and interpersonal interactions. Being an important component of these activities, learning, however, does not constitute their goal. What distinguishes learning as a special kind of activity is its focus on changes produced in the learner himself or herself. The learning activity was perceived by Russian followers of Vygotsky as a new cultural tool that amplifies the students' tendency toward independent, reflective, and critical thinking and acting. Elkonin, Davydov, and their students produced a strong body of evidence to substantiate the claim that when education in the elementary school is organized in the form of the learning activity, for the majority of elementary school children it creates the opportunity of becoming reflective thinkers and learners who know how to learn. Galina Zuckerman provides illustrations of the application of the notion of learning activity in Russian and Western primary school contexts and argues that when the instructional process is organized on a basis other than that of learning activity, the education in the elementary school is successful in developing valuable skills only in a relatively small number of gifted students. Only these students can distinguish between already mastered and not yet acquired skills, between already known and unknown concepts; they can hypothesize on the unknown and test their hypotheses. The same abilities

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are demonstrated by the majority of children in the learning activity classrooms.

Yet another view of neo-Vygotskian theory of learning and development is offered by Yuriy V. Karpov. Russian followers of Vygotsky have elaborated his developmental ideas into a theory that integrates cognitive, motivational, and social aspects of child development. The major determinant of development in this theory is the children's leading activity, that is, their age-specific joint action with adults and peers oriented toward the external world. In the course of this leading activity, children develop new mental processes, abilities, and motives, which outgrow their current leading activity. As a result, children switch to the new leading activity, which is characteristic of the next period of their development. Russian Vygotskians identified the sequence of children's leading activities in modern industrialized societies from infancy to adolescence and studied the mechanisms of children's transition from one leading activity to the next. As Yuriy V. Karpov states, the neo-Vygotskians' theory seems to present the most comprehensive approach to the problem of determinants of child development known in contemporary developmental psychology.

Children with special needs constitute a relatively new topic in Vygotskian literature in the West, although Vygotsky's contribution to the special education domain is prominent. The chapter by Boris Gindis starts with a review of Vygotsky's theory of disontogenesis (distorted or atypical development) in the context of sociocultural theory. The interrelationships between cognition and language in the process of the qualitative transformations during child development, both typical and atypical, and the role of socialization in the formation of human activities are the bases for the analysis. Vygotsky considered handicaps as sociocultural developmental phenomena in which compensation arises from socialization and enculturation. He demonstrated that a disability varies psychologically in different cultural and social environments. He introduced concepts of primary defects (organic impairment) and secondary defects (distortions of higher psychological functions due to sociocultural factors) in their dialectical interaction. In the area of psychoeducational assessment of children with special needs, Vygotsky created the foundation for the development of alternative methods, currently known as the family of dynamic assessment procedures. In Vygotsky's view, the main objective of special education should be the creation of a "positive differential approach" that can fully develop a handicapped child's higher psychological functions and overall personality. This concept is discussed in the context of the current debates about the notion of inclusion as a prospect for development in special education. Vygotsky's idea that a disabled child's development is determined by the social implications of his or her organic impairment creates a new perspective for socialization–acculturation and cognitive development of children with special needs. The chapter includes discussion of

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international experiences by scientists and practitioners working within a Vygotskian paradigm of special education. It concludes with a brief review of those remedial methodologies, general (e.g., cognitive education) as well as disability-specific (e.g., deafness), that either are based on a Vygotskian approach or have incorporated his major ideas. It is suggested that Vygotsky's socially, culturally, and developmentally oriented scientific legacy has the potential to unify, restructure, and promote special education as a science, profession, and social institution.

Part III addresses sociocultural approaches (1) to understanding of teacher development in teacher education classes and in schools and (2) to pedagogy in four disciplines – math, science, history, and literature. A major theme here is conceptual change, particularly in science, mathematics, and history. Using Vygotsky's distinction between everyday (i.e., spontaneous, empirical, practical) concepts and scientific (i.e., academic, theoretical) concepts, the authors examine the pedagogical means of developing students' deep disciplinary understanding through sequenced instructional activity.

In those efforts, almost every chapter addresses the current stance toward the nature of knowing in its discipline. The crossover to constructivist epistemologies is elaborated in the chapters on literature, history, and science but contested in mathematics, in favor of a specific cultural historical approach. The power of Vygotsky's concept of the zone of proximal development as a framework for understanding teaching and learning in mathematics, history, science, and literature is profoundly illustrated in this section. Each chapter also suggests the kinds of social interactions that move inward to become students' psychological tools, with extensive illustration of students' initiating use of those thinking tools in the chapter on literature. Finally, the impact of teachers' emotional lives in collaboration and crisis is also taken up in both theoretical formulations and in case study examples.

In her chapter Jean Schmittau proposes a Vygotskian-based curriculum as an alternative to the current constructivist reform movement in mathematics education. She critiques the pervasive practice of basing school mathematics on the activity of counting, demonstrating how such spontaneous concepts need to be replaced by the scientific concept of measurement. Drawing on her work with Davydov in Russia and using his mathematics curriculum in U.S. classrooms, she provides evidence that a Vygotskian learning paradigm for numbers and multiplication based on measurement better reflects mathematics in its essence – “the science of quantity and relation.” She provides evidence that this inquiry focus promotes not only a deep understanding of mathematics, but also the ability to think theoretically.

The chapter by Jacques Haenen, Hubert Schrijnemakers, and Job Stufkens provides a Vygotsky–Galperin model for the acquisition of

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historical concepts. Galperin's mental action theory, they argue, extends Vygotsky into the specific steps of instruction. Its usefulness is examined and illustrated through a school-based implementation and in teacher education. The question of how prior or "practice-based" knowledge can best be used in the teaching and learning of historical concepts is a central issue. According to Galperin, the formation of mental actions at four basic levels of abstraction must be a focus of the teaching-learning process. The authors extend Galperin's approach in teaching preservice teachers historical concepts through the use of visual models and dialogue to study concepts as categories. The sequence of activities is demonstrated through school-based lessons on historical concepts, using everyday concepts to build understanding of academic concepts, such as democracy and monarchy.

Hartmut Giest and Joachim Lompscher examine the issue of how conceptual problems in science learning can be overcome by the formation of learning activity ascending from the abstract to the concrete to promote the development of theoretical thinking in students. Examples from studies of how learning was arranged as a process of problem solving demonstrate what this means for students in science classes and also for teachers in preparation. The idea of formation of learning activity that allows creation of a real unity between learning and instruction, self-regulation and systemic learning, under a teacher's guidance is an important pedagogical approach that requires attention to two zones of development: current and proximal. The concrete activity in the classroom requires support by teachers, as is demonstrated by an extended example of the vortex study showing how using a heuristic provides the opportunity for students to begin thinking dialectically.

Suzanne Miller synthesizes more than a decade of ethnographic research on how classroom discussion in social constructivist literature pedagogy shapes students' knowing and thinking. Innovative secondary-school English teachers in diverse contexts created zones of proximal development through discussion and other dialectical activities to develop their students' narrative and critical thinking. The most effective teachers provided narrative and reflective strategies at students' points of need, using more instructional assistance for students with greater needs. In this way all teachers lent their structuring consciousness to students' interpretive activity. Over time, these varied ways of questioning and making sense – these assisted ways of talking – were appropriated by students, moving inward to become students' conscious strategies for narrative reflection and critical thinking about texts. In all, the studies provide evidence that teacher mediation in problem-posing contexts contributes to specific forms of critically reflective literacy practice.

In the context of school reform Anne DiPardo and Christine Potter remind us that whenever we want students to engage in new practices, we must also attend to teachers who need supported opportunities to

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internalize those practices deeply. In this chapter the authors draw on and expand Vygotskian theory beyond its well-known cognitive aspects to provide a theoretical analysis of “the role of emotions in informal thought and action,” particularly in the working lives of teachers. Through two extended case study examples, they develop, also, a narrative argument for enhanced attention to emotions in the professional lives of teachers, demonstrating that stress and burnout are not individually but socially constituted. Their full assessment of implications for teacher development suggests the importance of this topic at a time when external accountability of teachers may undermine the courage, the passion, the energy to teach.

In the last two decades, the Vygotskian theoretical framework has been steadily expanding into several neighboring areas of research and practice, such as cultural diversity and multicultural education. Though Vygotsky pioneered some cross-cultural studies of cognition, in vain would a contemporary reader seek direct references in Vygotsky's texts to “cultural funds of knowledge,” culturally appropriate, or culturally compatible pedagogies, and so many other important concepts related to modern multicultural education. At the same time, in its very essence, Vygotsky's approach does contain, potentially, one of the best theoretical frameworks for educating culturally and socially diverse learners. Part IV is dedicated entirely to the exploration of these potentials.

Does child–adult interaction differ, depending on socioeconomic status (SES)? In what ways do these differences influence cognitive development? How do these differences come into play in teacher–student interactions in and out of the classroom? In which ways does the lack of awareness of those differences perpetuate the disparity and achievement gap of low-income and minority students? Two chapters address these important questions. Pedro R. Portes and Jennifer A. Vadeboncoeur summarize a broad spectrum of theory and research, providing a comprehensive picture of data on the SES differences in socialization processes, in general, and in child–adult interaction, in particular. Carolyn P. Panofsky, on the other hand, focuses on a relatively few, in-depth studies that undertake detailed analyses of how differences in teacher–student interaction in classrooms, which sometimes are very subtle and of which teachers themselves are unaware, may convey lowered expectations and impede the learning process of low-income and minority students. Both chapters emphasize the urgent need for further research on SES differences in relation to teacher–student interactions and their mediating roles in cognitive development. These chapters will be particularly helpful for researchers and practitioners in urban, cross-cultural, and multicultural education.

Why is it so difficult for adults to study a foreign language? What role do imitation and internal dialogue (“intrapersonal communication”) play in second language acquisition? Everyone who has ever studied a foreign language in adulthood and was frustrated in the process can find inspiring