

CHAPTER 1

Educational Psychology: Contemporary Perspectives

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INTRODUCTION TO EDUCATIONAL PSYCHOLOGY

The field of educational psychology traces its beginnings to some of the major figures in psychology at the turn of the past century. William James at Harvard University, who is often associated with the founding of psychology in the United States, in the late 1800s published influential books on psychology (1890) and educational psychology (1899). Other major theorists and thinkers that figure in the early history of the field include G. Stanley Hall, John Dewey, and Edward L. Thorndike. Hall, cofounder of the American Psychological Association and its first president was a student of James. Dewey (1916), who at the University of Chicago introduced major educational reforms in the United States, was one of Hall's students. Thorndike, who we often associate with theories of intelligence and learning, was also one of James's students. He published the book *Educational Psychology* (Thorndike, 1903) early in his career and went on to start the *Journal of Educational Psychology* in 1910, one of the first journals to be published by the American Psychological Association. Thorndike had a tremendous influence on the study of psychology in the early 1900s, and in the integration of learning theory, individual differences, and psychometric methods into educational and school-based research (Beatty, 1998). Similarly, the impact of Lewis Terman (Terman & Childs, 1912) on the field of educational psychology and the

assessment of intelligence and the study of gifted children (as well as related areas such as educational tracking), was monumental at this time and throughout much of the 20th century. Others, such as Huey (1900, 1901, 1908) were conducting groundbreaking psychological research to advance the understanding of important educational fields such as reading and writing. Further influences on educational psychology, and its impact on the field of education, have been linked to European philosophers of the mid- and late 19th century. For example, the impact of Herbart on educational reforms and teacher preparation in the United States has been described by Hilgard (1996) in his history of educational psychology. Largely ignored by western psychologists until the 1980s, the work of Russian psychologists in the early 20th century, and in particular the work of Lev Vygotsky (1926/1997, 1978) also contributed to the field of educational psychology. As readers of this volume will find, the work and influence of Vygotsky permeates research in educational psychology in the United States at the end of the 20th and into the 21st century.

This volume of the *Handbook of Psychology* does not delve into the historical foundations of educational psychology but rather deals with exemplar research and practice domains of educational psychology in the latter part of the 20th and early 21st century, with a focus on promising research and trends. Historical antecedents of this field of psychology are presented in Volume 1 of the *Handbook*.

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It is evident from the chapters in this volume that much of the research in educational psychology has been conducted in classroom settings, which mirror the applied nature of this field. This research encompasses a broad range of related topics including: children's learning and abilities, reading, classroom processes, and teacher effectiveness. Educational psychology has been described as a discipline uniquely focused upon "the systematic study of the individual in context" (Berliner & Calfee, 1996, p. 6). The long-term focus on the study of children in classroom situations assists in the direct translation of research to practice. This is not a new idea, and has been the driving force of this field for more than 100 years.

From a pedagogical perspective, educational psychology differs from most fields of psychology in that it is often found as a separate department in universities and colleges. To some extent this reflects the diversity of research and academic domains within educational psychology, as well as the rich and applied nature of this field of study. Departments of educational psychology are most often found in colleges of education, and courses in educational psychology are typically required for students in teacher education programs and related majors.

The field of educational psychology has ties to many professional organizations and professional societies in the United States and other countries. In the United States, the two major organizations that represent the field of educational psychology are the American Psychological Association (APA) and the American Educational Research Association (AERA). In the APA, educational psychology has as its primary affiliation, Division 15, Educational Psychology, with secondary affiliations in Divisions 5 (Measurement & Statistics), 7 (Developmental Psychology), and 16 (School Psychology). In the AERA, Division C (Learning and Instruction) largely represents educational psychology with additional representation in Division D (Measurement & Research Methodology), Division E (Counseling and Human Development), and Division H (School Evaluation and Program Development). We also note that a number of prominent educational psychologists, including Lee Cronbach and Frank Farley have served as president of both APA and AERA, with Cronbach also serving as president of the Psychometric Society, and Farley president of numerous APA divisions and other professional organizations. A number of other professional organizations that have substantial overlap with educational psychology include the International Reading Association, Council for Exceptional Children, National Association of School Psychologists, Psychometric Society, Society for Research in Child Development, Society

for Research on Adolescence, and other societies and associations.

Contemporary educational psychology encompasses a broad and complex array of topics, research, and social policies. Research in educational psychology is often designed to provide insights into authentic educational problems, using empirical, rather than normative or subjective judgments. It is important to recognize that qualitative methodologies also provide empirical bases for understanding educational problems (Levin & Kratochwill, this volume). The field of educational psychology, possibly more than any other, has been shaped by many multidisciplinary factors. The impact of the cognitive revolution, for example, has been broadened by incorporation of other subdisciplines, including sociology, linguistics, neuroscience, philosophy, and the associated fields of psychology. The major focus of educational psychology, however, is on individuals and their development especially within educational settings. Another important characteristic of the field of educational psychology is that issues of concern are not mutually exclusive and in fact tend to overlap and interrelate more than stand as isolated domains of knowledge. More recently the field has included in its focus the study of new technology-based and computerized learning environments (Graesser, 2009), the depth of which is illustrated by Goldman, Black, Maxwell, Plass, and Keitges (this volume).

Educational psychology includes a rich heritage in the domains of research design and methodology, including statistics and measurement. For most of the 20th century, educational psychologists have contributed to enhancing statistical and measurement procedures, and this continues into the 21st century. As an example, in the 1950s two educational psychologists published papers reporting on statistical and measurement procedures that have become among the most frequently cited articles in psychology. Cronbach's (1951) classic paper on the internal structure of tests and the derivation of coefficient alpha as an internal measurement of reliability continues to be one of the most cited papers in the behavioral sciences and the most used (and also debated) procedure for the measurement of test reliability. Henry Kaiser's dissertation in educational psychology at the University of California at Berkeley in the mid-1950s provided the basis for an orthogonal rotation procedure in factor analysis that he called varimax factor rotation (1958), with various little jiffy procedures to follow. Donald Campbell (an APA president) and educational psychologist Julian Stanley (an AERA president), published a little volume in 1966 (expanding on the great work of Iowa educational psychologist E. F. Lindquist

[1940] who was also cofounder of the American College Testing Program—ACT), which provided a simple structure for researchers in many fields for understanding basic research designs and associated threats to internal and external validity. This work also laid the foundation for the development of numerous quasi-experimental designs (Cook & Campbell, 1979; Shadish, Cook, & Campbell, 2002) that are critical to educational research and program evaluation. These are but a few of the many statistical, measurement, and methodological contributions that have been and continue to be made to the field of psychology, and behavioral and social sciences by educational psychologists.

CURRENT PRESENTATIONS OF THE FIELD

A comprehensive review of major work across the field of educational psychology was presented in the publication the *Handbook of Educational Psychology*, edited by Berliner and Calfee in 1996. This influential handbook, sponsored by the APA division of Educational Psychology (Division 15), was commissioned to reflect the current state of the field up until the early 1990s. Berliner and Calfee provided a powerful synthesis of the scholarship that defined the scope and relevancy of educational psychology as a discipline up until this time. The major goals of this volume were to offer a vigorous defense of educational psychology as a discipline and to forward the distinctive viewpoints that educational psychologists maintain when explaining educational events. Chapters were organized to represent the major domains within the discipline. Authors were asked to discuss how coverage of these topics changed from 1970 to 1990 and to summarize significant changes in research design within the discipline. The following domains were covered: learning and transfer, motivation, physical and psychological development, intelligence, exceptionality, psychology of learning within subject matters, assessment, processes of teacher growth and development, the psychology underlying instructional strategies, educational technology, and the methodological, philosophical, and historical foundations of the field.

Several consistent conceptual threads ran through the majority of invited chapters. One was the critical paradigm shift from behaviorism to cognitive psychology that shaped the discipline over this period. Another commonality across topics was that this conceptual shift resulted in a vigorous debate regarding research methods. What has emerged is a greater range of analytical tools, a

methodological pluralism marked by some promising new practices such as exploratory data analysis (Jaeger & Bond, 1996) and design experiments (Brown, 1992). In drawing conclusions about the field, Berliner and Calfee suggested that the discipline's bread and butter issues had not changed as dramatically as the conceptual and methodological tools that educational psychologists employ to understand educational phenomena. They also concluded on a note of congratulatory celebration at what educational psychology, as a discipline, has contributed and looked optimistically to its future.

Although not yet published as the current volume was going into production, the American Psychological Association has undertaken a three-volume, 1,800-plus page work covering the many domains within educational psychology (Harris, Graham, & Urdan, in press). Volumes of this work focus on the diversity of theories, constructs, and issues in educational psychology; the study of individual differences and the contextual and cultural influences on persons; and how the field of educational psychology informs and advances our understanding of learning and teaching.

Pressley and Roehrig (2002) provided a synopsis of the major domains reflected in the field of Educational Psychology during the past 40 years of the 20th century. These researchers categorized all research articles published in the 1960–1961 and the 1997–1998 issues of the *Journal of Educational Psychology*, the leading journal serving the field. Domains of information reflected in three contemporary handbooks, texts were also categorized, and editorial board members of the *Journal of Educational Psychology* were surveyed for their opinions of texts and articles that had the most significant impact on the field. The consensus of these reviews is amazingly similar in that at least 11 consistent domains appear: cognition; learning; development; motivation; individual differences; teaching and instruction; classroom and sociocultural processes; social relations in education; psychological foundations of curriculum; educational technology; and educational research methods and assessment.

These authors also noted that behaviorism and then the cognitive revolution were two critical forces driving the field, with the former more prevalent before the 1960s and the latter dominating the past 40 years (Pressley & Roehrig, 2002). Many significant changes were noted that led up to this change, beginning with the idea that an internal processing system and internal mechanisms could be objectified and studied (Miller, Galanter, & Pribram, 1960, *Plans and the Structure of Behavior*) and followed by work centered on memory (Tulving & Donaldson, 1972),

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imagery (Levin, 1973; Paivio, 1971) and other learning processes (Rohwer, 1970; Schank & Abelson, 1977).

Instructional theory and innovations were impacted by Bruner's writings (1960, 1966), as well as the work of Hunt (1961) and Flavell (1963), who together with others (Brainerd, 1978; Inhelder, Sinclair, & Bovet, 1974) helped introduce and transform Piaget's ideas into work on children's thinking. Other's work was more directly linked to educational application, especially in regards to observational and social learning, (Bandura, 1969; Rosenthal & Zimmerman, 1978), text comprehension (Anderson & Pearson, 1984; Kintsch, 1989), writing (Flower & Hayes, 1980), problem-solving and mathematics (Mayer, 1976; Polya, 1957; Schoenfeld, 1985).

Sociocultural and cross-cultural contexts were introduced as important factors influencing learning and cognition. Schooling and other critical contexts have been more prominent in the field since the pioneering work of Scribner and Cole in the 1980s and the influence of Vygotsky's work with the 1978 translation of *Mind and Society*. This work has helped to reconceptualize instruction and teacher training, as well as related domains of cognitive psychology. It has moved the field from an individual focus to a broader interpersonal framework. Much of the current research reflects the idea that the child, adults and the contexts surrounding an event are responsible for forwarding cognitive activity and building competence. These ideas have been inspired by Vygotskian theory and have contributed to substantial reforms reshaping contemporary school environments. They have had a direct impact on the design of instruction and have had a profound influence on educational research innovation. The linkages between theory and teacher learning, teacher and student relations and the social climate in classrooms have all become more significant domains of study within the field of educational psychology. We find it of interest to note the extensive citations to the work of Vygotsky across many of the chapters in this volume.

Theories of motivation and its effect on cognition, learning, and social relations have also been more prominent. Historically, the work in educational psychology was dominated by an emphasis on cognition and motivation was ignored. Recent work has pointed to the importance of motivational constructs that apply to all individuals and that can explain important individual differences in cognition. The seminal work of Bernard Weiner (1979) has been instrumental in promoting research that linked cognition and motivation. Ames in the early 1980s also helped connect goal theory with classroom performance (Ames, 1984; Ames & Archer, 1988), others have looked at classroom structures that make a difference in student

performance and have refocused on educational motivation as a cognitive enterprise.

Over the past two decades, education and educational issues have dominated both state and national agendas (e.g., No Child Left Behind). It is no surprise that educational psychologists have been involved in or have directed many of these studies that have become a major force in crafting federal policies and legislation. For example, in the 1990s, a group of psychologists who were members of the Division of Educational Psychology (Division 15) of the American Psychological Association were instrumental in producing a collaborative document outlining critical learning principles for all students (*Learning Principles for All Students*, Lambert & McCombs, 1998). Barbara McCombs, one of the original editors of this publication, reviews in this volume the issues addressed in this document and the impact it has had on recent federal educational policy and reforms. The American Psychological Association has in the latter part of the 20th century been instrumental in its professional contribution to educational reforms in this country (e.g., *Learner-Centered Principles: A Framework for School Redesign and Reform*, American Psychological Association Board of Educational Affairs, 1995), with the field of educational psychology providing the foundation for this contribution. Recently, the American Psychological Association in collaboration with the Association of Psychological Sciences produced a listing of 25 cognitive principles of learning adapted to a lifelong learning perspective (Graesser, Halpern, & Hakel, 2008).

DISTINCTIVENESS OF THIS VOLUME

This handbook looks at how the discipline of educational psychology will shape the next generation of learners and teachers. Three immediate contextual factors have begun to influence the evolving role of educational psychology in educational practice. First, the gossamer threads of the Internet, a symbol of the information age, will expand increasingly to reach all sectors of our society, and in particular, education. Learners and teachers in the information age will more than ever need to be flexible, reflective, motivated learners. Second, in the next decade a significant number of individuals will go through formal teacher education and begin careers. How they use the knowledge, concepts, and methods of educational psychology as they engage in essential acts of teaching (Grant & Murray, 1999) will be critical. Third, the policy community will have a powerful impact on the funding of research programs sponsored by both the federal government and foundations.

This volume builds upon the optimistic future that Berliner and Calfee (1996) foreshadowed regarding the discipline of educational psychology. Although their handbook provided a systematic overview of the field of educational psychology and legitimized the relevance of this distinct discipline, this volume seeks to highlight key concepts of ongoing research conducted at the beginning of the 21st century. A second goal of this volume is to identify more exclusively the key promising areas for continued research over the next two decades.

This volume both elaborates on and departs from previous handbook domains. There are distinct overlaps in the following areas of cognition, learning, and motivation, and in reviews of applications of educational psychology to curriculum, classroom, and teaching processes and exceptional learners. We depart, however, in that our intent was to selectively focus on topics that have strongly influenced the field in the new century. We also choose to de-emphasize traditional school subject domains and instead selected four areas—early childhood, literacy, mathematics learning, and new technologies. These curriculum areas have not only increasingly taken the forefront both in the quantity of research conducted but also have repeatedly been in the public and policy spotlight influencing many areas of school reform.

Another departure from prior handbooks is that we did not have a separate section or chapters in child and adolescent development or research methodologies because independent volumes in this series are devoted to these topics. (See Volumes 6 and 2.) Instead, many of the authors here reviewed contemporary developmental findings and elaborated on contemporary research methodologies within their respective domains of study. An early emphasis in educational psychology was the study of “character” as an important aspect of the child in school, and one that has re-emerged as a vital domain of research (Lapsley & Yeager, this volume). Thankfully, teachers no longer develop moral character in students by using wooden rulers. We acknowledge the impact of educational psychology on teaching by including chapters on teaching processes and a more contemporary chapter on teacher learning and teacher education and preparation, which again are issues where educational psychology research may have a strong influence on such policy in the future.

OVERVIEW OF THIS VOLUME

The chapters in this volume can be viewed as covering five major domains of contemporary research in educational psychology. *Cognitive and Regulatory Contributions to*

Learning, Development, and Instruction chapters focus on processes and factors affecting the learner and learning, including individual differences and contextual influences in intellectual processes, metacognition, self-regulation, and motivation. *Sociocultural, Instruction and Relational Processes* chapters examine sociocultural, moral-character development, school adjustment, and interpersonal and relational processes between teachers and students in culturally situated settings for learning. *Early Education and Curriculum Applications* chapters highlight psychological contributions to improving outcomes in early childhood, the psychology of literacy, mathematics, and new media technologies for learning. The chapters in the domain of *Psychology in the Schools* focus on understanding the school-based and developmental needs of exceptional learners. Finally, chapters in the *Educational Programs, Research, and Policy* section review current practices in teacher preparation, educational and psychological research for evidence-based outcomes, and the pressing need to transform the immense knowledge base established by educational psychology researchers into sound educational policy and reform.

The authors who contributed to this volume were selected not only for their important and long-standing research contributions, but also because their work reflects the most current areas of research defining their respective fields of scientific inquiry in educational psychology. These authors integrate and synthesize research as well as formulate meaningful directions and suggestions for further scientific study. Each of the chapters in this volume provides a unique examination of an important area within educational psychology. The significant communalities across chapters highlight the connectedness and internal consistency of educational psychology as a field of scholarship. These common threads are further expanded upon in the last chapter of this book.

Cognitive and Regulatory Contributions to Learning, Development, and Instruction

The focus of this section is on cognitive processes within the learner and teacher, and includes the development of such processes and developmental directions for future research. Developmental theory is not singled out here, because Volume 6 in this *Handbook of Psychology* series is dedicated exclusively to this topic. Prominent in this work is a focus on individual differences in intellectual processes, metacognition, self-regulation, and motivation. The chapters in this section also exemplify the field of educational psychology by relating theory to instruction and factors affecting individual learners and teachers within classrooms.

Contemporary Theories of Intelligence

The field of educational psychology has a long history of research and interest in the theory and study of intelligence. In the early part of the 20th century, the *Journal of Educational Psychology* was the primary scientific journal in this country for research on the study of intelligence. In addition to theories, a major emphasis in this field of inquiry was its measurement, which continues to occupy a significant place in the study of intelligence. Sternberg (this volume) reviews both classical and contemporary intelligence theories and their profound implications on practical life and societies. He critically evaluates classical intelligence theories that have had a strong impact on education and goes on to present challenges to these and to current conceptions of intelligence. Intelligence-related abilities permeate many areas of society. In the United States and many other Westernized nations, these are most visibly represented in a multitude of educational and occupational tests shown to relate to societal success. Competing views about the sorting influence of intelligence are presented. Sternberg concludes that societies often choose a similar array of criteria to sort people, but he cautions that such correlations may simply be an artifact of societally preferred groups rather than a result of some “invisible hand of nature.”

Sternberg describes the need for psychometrically sound measures of intelligence as a necessary prerequisite for the validation of theories of intelligence. A significant trend in the past two decades has been the development of intelligence tests based on cognitive and information processing theories of intelligence. Literature is presented on implicit views of intelligence that have served as the basis for explicit conceptions and tests of intelligence. The early biological theories of Halstead (1951), Hebb (1949), and Luria (1980) are reviewed and contrasted with more contemporary biological findings and theories that are poised to have a substantial influence on psychometric work in the future.

Self-Regulation and Learning

Schunk and Zimmerman (this volume) discuss the role of self-generated or self-directed activities that students use during learning. These notions strongly suggest that students are actively constructing and exercising control over their learning and social goals. Work in the past two decades has isolated integral components of self-regulation processes that influence achievement cognitions, behaviors, and emotions (Schunk & Zimmerman, 2008). Researchers have continued to demonstrate

that successful learning is a result of key self-regulation abilities, such as attending to instruction, setting personal goals, processing of information, rehearsing and relating new learning to prior knowledge, believing that one is capable of learning, and establishing productive social relationships and work environments (Zimmerman & Schunk, 2004).

Five theoretical perspectives are reviewed that have characterized work within this area: operant theory, information processing theory, developmental theory, social constructivist theory, and social cognitive theory. Research to support the role of self-regulatory processes is reviewed as is a well-documented intervention that has been successfully linked to improvements in self-regulation in a variety of learners and across different learning contexts. It is of interest to note that the vast majority of the research presented in this chapter focuses on the examination of psychological constructs within the context of the school classroom. The importance of self-regulation in the learning enterprise is presented and reinforces the critical application of educational psychology toward understanding and how children learn and how we can enhance the learning process.

Metacognition and Learning

McCormick, Dimmitt, and Sullivan (this volume) consider metacognition as a conscious subcomponent of self-regulation that contributes to a learner’s knowledge of and control over cognition and as such demonstrate the refinement that has emerged in the construct since it was first described by Flavell (1976). Research on metacognition is concerned with the knowledge and control of cognitive thought and learning processes that are similar yet distinguished from self-regulation (reviewed by Schunk & Zimmerman, this volume) and executive function. The growth of research in this field can also be recognized by a new journal, *Metacognition and Learning*, devoted exclusively to this domain of knowledge.

Theoretical issues that have driven researchers over the years are presented as well as the current unresolved debates. Research paradigms used to assess such abilities are reviewed, including feeling of knowing, pretest judgments, and judgments after retesting. An argument is made that work in metacognition is best viewed as a bridge between theory and practice. The importance of metacognition to both learner characteristics and curriculum design is highlighted in this chapter. For example, researchers have found that students with general metacognitive skills do better on novel classroom tasks and also are more likely

to improve in academic performance over time (Winne & Nesbit, 2010). Classroom environments as well as curriculum adaptations have been designed to encourage metacognitive development (Veenman, Van Hout-Wolters, & Afflerbach, 2006). In a similar manner, metacognitive skills have also been promoted through the use of cooperative or reciprocal peer-learning models. It is useful to note that much of the research in this area has been conducted with authentic academic tasks such as reading, writing, and problem-solving in science and math.

Motivation and Classroom Learning

Motivation is a critical domain of study within the field of educational psychology, with a particular focus on student learning (Pintrich, 2003; Wentzel & Wigfield, 2009). Anderman, Gray, and Chang (this volume) present a comprehensive review of the substantial advances in our scientific knowledge of motivational constructs and their impact on student cognition and learning, especially in classroom settings. Recent developments associated with five major theories of achievement motivation are reviewed. *Self-deterministic* motivational researchers have historically focused on extrinsic and intrinsic motivation and these concepts have been broadened to self-determined versus controlled motivation. *Attribution* motivational researchers consider reasons and explanations of one's success and failure and contemporary research has focused on how teacher feedback and other instructional variables can impact such expectancy beliefs. *Social cognitive* motivational researchers emphasize self-efficacy beliefs, or one's perceived ability to perform a task, and recent work has been conducted to examine how this impacts student learning across critical academic domains such as mathematics (Fast et al., 2010). *Expectancy-value* motivational researchers examine expectations for success and perceptions of task value and recent work within this framework has begun to account for social and cultural factors that predict task performance as well as one's decision to persist and engage in learning (Eccles, 2005). Finally, *achievement-goal* motivational researchers seek to specify situational demands and goal structures most associated with adaptive short- and long-term learning outcomes. This work has expanded beyond simple examinations of mastery versus performance motivation to investigations of performance goal subprocesses, that is, performance-approach where one is preoccupied with demonstrating competence in comparison to others and performance-avoid where the focus is on demonstrating that one is no less competent than others (Harackiewicz,

Barron, Pintrich, Elliot, & Thrash, 2002). The chapter ends with a review of research on instructional conditions that affect motivational processes, including how educators make decisions on the selection and presentation of learning tasks, the allocation of rewards, and the assessment of progress and learning outcomes. The general conclusion to be drawn from this large body of work is that many school and classroom structures and instructional processes can be altered successfully to foster the development of important motivational processes (E. Anderman & L. Anderman, 2010; Wentzel & Wigfield, 2007).

Sociocultural, Instructional, and Relational Processes

Contemporary educational psychology draws substantial inspiration and guidance, directly and indirectly, from social learning theory, and in particular from the work of Bandura (1969, 1977, 1982). This work reflects a strong sociocultural perspective in which the emphasis is on interpersonal, motivational, and social processes that occur in classrooms and other culturally situated settings. Likewise, the important contributions of Vygotsky (1926/1997) to educational psychology and the understanding of the learner and the learning environment is as important now as it was more than 80 years ago. Work reviewed here focuses on group structures, cooperative learning, and interpersonal relationships and on the role of personal motivation, goals, and other internalized social processes that contribute to academic, behavioral, and social adaptation.

Vygotsky and Sociocultural Approaches Teaching and Learning

Social and cultural contexts are important considerations for the understanding of learning and development. The influence of Lev Vygotsky in the latter part of the 20th century has provided a scaffold for the development of theories of language acquisition, writing, assessment, concept formation, and other domains of learning. Vygotsky's work and that of other Russian psychologists such as Luria in the early part of the 20th century created a major paradigm shift in western psychology in the 1960s and 1970s (Luria, 1961; Vygotsky, 1962, 1978). This body of work, and in particular the concepts of internal dialog and the verbal mediation of behavior, greatly influenced the field of learning and also the emerging field of cognitive behavior modification, as evidenced in the work of Donald Meichenbaum in the development of self-instructional training (Meichenbaum, 1977).

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Mahn and his colleague John-Steiner, one of the original editors of Vygotsky's (1978) major work *Mind in Society: The Development of Higher Psychological Processes*, describe the social and cultural contexts for instruction and learning. Mahn and John-Steiner explore Vygotsky's contributions to educational psychology beginning with an overview of his life's work and the ways in which his theoretical framework has influenced sociocultural approaches to learning and development (Vygotsky, 1978, 1981, 1987, 1993). His growing influence has shaped culturally relevant and dynamic theories of learning.

They discuss sociocultural approaches in educational psychology with an emphasis on the contributions of Vygotsky and his notions of the individual in the creation of contexts and the internalization of person and environment interactions. These broad interdisciplinary applications of Vygotsky's work and theories are presented as Mahn and John-Steiner clarify the philosophical underpinnings of this framework and how it addresses a range of learning outcomes.

The breath of Vygotsky's ideas and their implications for understanding the context and processes of learning are presented, along with the nature of his dialectic method as applied to cognitive processes. The role of Vygotsky's work and theories for educational reform, including children with special needs, assessment and in particular dynamic assessment, and collaborative efforts in education are discussed. Studies that highlight the relationships between context and individual and social processes and underscores the need to develop environments for literacy teaching and learning that honor linguistic and cultural diversity (e.g., Mahn & John-Steiner, 2005) are presented. These authors also review research in two overlapping fields—second language learning and literacy—to discuss the obstacles these learners face when acquiring literacy in a second language with examples of current research.

Moral Character Development

The interest in moral character development, particularly as it plays a role in the education of students predates the field of educational psychology. More recently, there has been a reemergence in the recognition of this field, as shown by a number of professional organizations and journals specific to this domain (Association for Moral Education, the Character Education Partnership, *Journal of Moral Education*, *Journal of Research in Character Education*). Lapsley and Yeager (this volume) review the assumptions and paradigms in moral character education

along with a number of theoretical approaches. The latter including, moral stage theory, domain theory, and moral self-identification. In considering the evidence for moral education, Lapsley and Yeager take a programmatic approach to examine what principles of character education have proven efficacious by researchers and educators.

The authors discuss methods for the implementation of moral character education that involve both traditional implementation strategies (i.e., those relying on explicit persuasion, teaching of skills, or changes in classroom culture and on precise learning objectives, teacher scripts, worksheets, assessments, and professional development workshops) to new *indirect* or “stealthy” intervention strategies (Yeager & Walton, 2011). Indirect or “stealthy” interventions typically assume that (a) children or adolescents at some level know right from wrong and want to do what is right, but (b) critical barriers—such as one's beliefs—restrain their behavior and keep them from acting on their knowledge and motivation. Indirect interventions are designed to remove these barriers using brief changes to the subjective psychological context. They have the advantage of being “small” and minimally invasive, which is useful for promoting internalization, avoiding stigmatization, and preventing deviancy training. Lapsley and Yeager review research supporting the viability of this approach, including use in universal prevention.

Cooperative Learning and Achievement

After reviewing literature conducted over the past 30 years, Slavin (this volume) present an integrative model of the relationships among variables involved in cooperative learning. Slavin moves beyond a review that establishes the effectiveness of cooperative learning to focus more specifically on conditions under which it is optimally effective. Slavin reviews recent empirical work on cooperative learning directed at identifying critical factors that motivate and impede learning outcomes. The work in this area primarily has been framed within four theoretical perspectives: motivational, social cohesion, cognitive-developmental, and cognitive-elaboration. He reviews empirical evidence for each perspective. Critical group processes, teaching practices, or classroom structures are evaluated within each of these frameworks. Although several comparative studies have been conducted to contrast alternative theoretical formats of cooperative learning or to isolate essential elements, this work has been hindered due to the variety of factors examined and the different measures, durations, and subjects that have been used. Slavin offers a theoretical model of cooperative learning

processes, which acknowledges the contributions of work from each of the major theoretical perspectives, explores conditions under which each may operate, and suggests research and development needed to advance cooperative learning scholarship.

Research conducted over the past decade has focused on how to structure interactions and incentives among students in cooperative groups. Findings suggest that within cooperative groups a combination of group rewards and strategy training produces much better outcomes than either alone (Slavin, 1995). Several reviews of the cooperative learning literature have concluded that cooperative learning is most consistently effective when groups are recognized or rewarded based on individual learning of their members. Although the specific forms and means of implementing group incentive and individual accountability have varied widely across studies, evidence overwhelmingly points to the need to include both to obtain the greatest, long-standing impact on students' learning.

There is still some controversy about the importance of group goals and individual accountability in providing students with an incentive to help each other and to encourage each other to put forth maximum effort. Studies consistently support the importance of group goals and individual accountability. However, Slavin points out research that demonstrates the times when group goals and individual accountability may not be necessary. For example, when students are working collaboratively on higher level cognitive tasks that lack a single right answer, or where students are already strongly motivated to perform, as in voluntarily formed study groups, or where the tasks are so structured that learning is likely to result simply from participating. Another context where group goals and individual accountability may not be essential is during communal learning groups composed of homogeneous ethnic minority members, possibly because of an already high level of interdependence functioning within African-American communities (Hurley, 1997).

Relationships Between Teachers and Children

The relationship between teachers and their students is complex and multifaceted. Sabol and Pianta (this volume) note that research on teacher processes and teacher-student relationships has moved far beyond its original focus on teachers' and students expectations and instructional interactions, classroom discipline and management, socially mediated learning, school belonging and caring, and teacher support. Many of these topics have roots in basic sources and disciplines within educational and developmental psychology, a sampling of which include the

original work of Brophy and Good (1974) on teacher-child interactions, Rosenthal (1969) on classroom interpersonal perceptions and expectations that influence student performance, Vygotsky (1978) on socially constructed development, Bronfenbrenner and Morris (1998) on the influence of multiple contexts on development, Bowlby (1969) and Ainsworth, Blehar, Waters, and Wall (1978) on attachment process between parents and children, and the clinical work investigating marital and familial processes (Bakeman & Gottman, 1986), the role of adult relationships in promoting resiliency (Peterson, Faucher, & Eaton, 1978; Werner & Smith, 1980), and finally the longitudinal contributions of developmental systems theory and longitudinal studies of health and psychopathology (Loeber, 1990; Rutter, 1987).

As conceptualized by Pianta, Hamre, and Stuhlman (2003), child-teacher relationships not only involve the study of verbal and nonverbal communication processes for exchanging information between two individuals, but also embody biologically determined characteristics and attributes of the individuals involved (i.e., age, gender, ethnicity, temperament, developmental history, and experience), individuals' views of the relationship and their own and the other's role in the relationship, and the external systems within which these interactions are embedded. Educational psychologists have been instrumental in demonstrating that such relationships are a central school-based relational resource that has a positive and reciprocal effect on students' learning, achievement, enjoyment, involvement, and school retention as well as on teachers' sense of well-being, efficacy, job satisfaction, and retention in teaching (Pianta, 1999). Sabol and Pianta review the current work on teacher-student relationships that has evolved into a dynamic field of study based on developmental systems theory where relationships are viewed as part of holistic, multilevel interrelated units functioning reciprocally to motivate successful adaptation and developmental change.

Compelling research results suggest that high quality teacher-child relationships protect against known behavioral risk factors. Students with adjustment problems can develop strong relations with teachers, especially when they have a warm, supportive relationship with a preschool or early elementary teacher (e.g., Hamre & Pianta, 2001). This benefit is also corroborated in research on parent-child relationships, with findings that parental warmth stabilizes behavior problems and is associated with a reduction in the growth of externalizing behaviors (e.g., Eisenberg et al., 2005). Positive relationships with teachers provide opportunities to promote the reorganization of

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relational schema and buffer children from negative developmental outcomes associated with problematic early caregiving experiences (e.g., Zajac & Kobak, 2006). Children from various social, economic, and cultural groups who often demonstrate a higher level of problem outcomes in school also appear to be protected by high-quality relationships with teachers (Hamre & Pianta, 2005). Overall, current research provides substantial evidence for compensatory benefits of positive child-teacher relationships for at-risk children. Studies have begun to uncover how relationships with teachers are related to development, and the extent to which teacher-child relationships may act as a moderator for at-risk children.

School Adjustment

Research has demonstrated that socially adjusted individuals are able to set and achieve personally valued goals that are sanctioned by the larger community as relevant and desirable. Educational psychology researchers have been at the forefront identifying what motivates and mediates such personal goals, the impact of these on personal and school adjustment, and the classroom/school factors that support and promote the expression of these attributes (Wentzel, 2003).

Children's school adjustment and achievement is affected by social competencies, such as social goal pursuit, behavioral skills, and positive interpersonal relationships (Wentzel, 2004). There has been somewhat of a paradigm change in the study of school engagement from how students engage in or refrain from negative behaviors such as aggression, inattention, or class disruption, to the examination of desirable aspects of behavioral engagement such as cooperative, compliant, or self-regulated behavior. These latter behaviors are considered critical for the "social integration" (behaviors that promote the smooth functioning of the social group or that reflect positive social approval) of children and positive developmental outcomes (feelings of personal competence, self-determination, and social and emotional well-being). Researchers also consider competence in children to be best understood in terms of context-specific effectiveness, such as reflected in mastery of culturally and socially defined tasks.

Wentzel (this volume) defines social competence as the extent to which "students accomplish goals that have personal as well as social value in a manner that supports continued psychological and emotional well-being." She highlights the importance of defining school adjustment within an ecological, competence-based framework and

the importance of social competencies to overall school adjustment and the interrelationships of social, motivational, and academic success. Wentzel also addresses three important issues in need of consideration and empirical investigation for understanding children's adjustment to school, including: (1) the expectations and goals we hold for our students, (2) the role of developmental processes in choosing these goals, and (3) the development of more sophisticated models, research methods and designs to guide research on school adjustment.

EARLY EDUCATION AND CURRICULUM APPLICATIONS

Educational psychology has always concentrated on the improvement of educational programs and instruction through the application of psychological theories, processes, and research. In this manner, teaching and curriculum materials and technologies are informed by educational psychologists. Work reported in this section centers on the psychological contributions to curriculum and instruction in early childhood, literacy, mathematics, computers, new medias, and technologies for learning. Rather than cover all of the traditional school subject curriculum domains, we selected four broad areas where educational psychologists have had a major and continuing influence over the past two decades. These selected areas have received increasing attention by politicians due to societal pressures and have taken the forefront both in the quantity of research conducted and their influence on key areas of school reform.

Early Childhood Education

According to Squires, Pribble, Chen, and Pomés (this volume), research in early childhood education has grown dramatically over the past two decades in concert with our increased knowledge about the significance of the birth to five period. Squires and her colleagues review work on early childhood education that focuses on creating developmentally appropriate continuums of learning and development for children, supporting a high-quality and well-compensated early childhood workforce, expanding access for children to high-quality programs in all settings, and promoting collaboration among systems serving young children and families. They note there has been more than 50 years of debate regarding the potential benefits of early childhood education. We now know that early childhood education has the potential to support

healthy brain growth by providing positive child-caregiver relationships, safe learning environments, and stimulating experiences. Children's brain growth has been shown to be impacted by the quality of their relationships and exposure to consistent, responsive caregiving (National Scientific Council on the Developing Child, 2004, 2007).

Research and practices in early childhood education, as well as beliefs and attitudes about young children are reviewed and tied to theoretical approaches. Because early relationships and experiences are fundamental for building strong brain architecture, early education has a critical role to play. Early education programs can also help bolster the home environment, adding to the stimulating interactions and enriching experiences in a child's life.

There is a body of evidence supporting the positive impact of early childhood programs, which has grown in the past decade. This work began with older studies conducted in the 1960s to 1980s that were focused on figuring out ways to help disadvantaged children obtain better long-term outcomes by random assignment to an early childhood intervention or control group. Results generally indicate that children who attended the preschool program had lower levels of special education placement and higher levels of high school graduation in comparison to children in the control group. As adults, they also had higher income levels, lower levels of welfare assistance and arrest rates, and other positive outcomes. More recent work has been conducted on cost-benefit analyses of high-quality preschool programs. These analyses reveal that such programs have positive economic returns for educational intervention, particularly in comparison to remediation efforts (Reynolds, Temple, White, Ou, & Robertson, 2011; Temple & Reynolds, 2007).

In the past decade, efforts have focused on making sure that educational services are delivered in ways that are effective by identifying evidence-based practices regarding early intervening models (Barnett, VanDerHeyden, & Witt, 2007). Researchers have developed and implemented multitiered models of prevention for young children and have identified critical features of such models (Squires, 2010). These models are designed to help professionals identify young children's needs and services in an effective, timely, and hierarchical approach.

Psychology of Literacy and Literacy Instruction

Perhaps no other single educational issue has received as much national and international attention as literacy development (Pearson, 2007; Pearson & Hiebert, 2010). Pearson and Cervetti (this volume) note the ground breaking work in this area done more than 100 years ago by

Huey (1908) who applied psychology to understanding reading and reading instruction. Huey (1900, 1901) was one of the first psychologists to apply scientific methods to the study of reading, examining eye movement and processing speed among other aspects of reading.

Pearson and Cervetti in reviewing this enormous multidimensional domain of literature focus on a number of critical syntheses and reviews by educational psychologists and scholars of reading (Kamil, Pearson, Moje, & Afflerbach, 2011, National Institute of Child & Human Development, 2000; Snowling & Hulme, 2005). They note that various national mandates have emphasized the need for rigorous research in reading, with the No Child Left Behind legislation of 2002 using the term *scientifically based reading research* appearing 110 times in the bill.

Pearson and Cervetti review a multitude of instructional contexts and approaches for reading development that have been studied, with an emphasis on critical reviews of these approaches conducted in the past 20 years. They identify a number of promising lines of research that provide useful information on the various complex processes inherent in learning to read. These range from the construction of mental representation of text and text-level processing, to understanding the issue of volume when examining vocabulary knowledge and literacy development. In addition to these disciplinary approaches, researchers have begun to take more multicomponent approaches across and within various components of the reading processes. For example, Graesser, McNamara, and Kulikovich (2011) have developed an empirically based multidimensional procedure for examining text difficulty in primary and secondary school textbooks. Pearson and Cervetti conclude by noting the complexity of research approaches used for the scientific study of literary and literacy education and how this has led to some tension between scholars in this and other fields such as mathematics education (Schoenfeld & Pearson, 2009).

Mathematics Learning

We often take precursors to the development of mathematics and mathematics learning for granted. The psychology of mathematics learning is a broad field of study. To provide a meaningful discourse on some of the major developments and research in this field, Lehrer and Lesh (this volume) systematically examine the development argument and inscription as these domains relate to mathematics learning. From these basic structures, the authors examine how generalizations evolve in the areas of geometry-measurement and mathematical modeling,

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the former drawing from the related domain of spatial visualization and the latter an area of needed research in mathematics learning and education. To support their treatise, Lehrer and Lesh utilize cognitive and sociocultural perspectives to examine research and theory in these fields of scientific inquiry.

Lehrer and Lesh formulate and present rationale that describe the development of conversational argument, including such concepts as analogy and the development of relations, conditions, and reasoning and how these provide routes to the formulation of mathematical argument as well as mathematical proof. The role of inscription systems or marks on paper and other media is described as a mediator to mathematics learning. From a developmental perspective, the growth of inscription ability and skills allows for the differentiation of numbers from letters, forms, maps, diagrams, and other aspects of symbolic representation.

Lehrer and Lesh call for a broadened scope in what we consider to be mathematics, taking a cognitive-developmental perspective with particular relevance to classroom-based research and its application to mathematics education. The case is presented for mathematics learning as a complex realm of inquiry that draws from many cognitive domains. Lehrer and Lesh review the research on models and modeling in mathematics education and how this is critical for problem solving in mathematics, particularly at the elementary grade level (Lesh & Harel, in press; Lehrer & Schauble, 2005, 2007). They review significant recent work emphasizing classroom practices that can support productive mathematical thinking even in early elementary classrooms, such as pretend play, setting norms for classroom conversations that emphasize “the need for proof,” and the orchestration of guided dialogic experiences generated from collective and shared everyday knowledge.

Learning With Digital Media: Contemporary Theory and Research

Goldman et al. (this volume) present a historical review and creative prospective insights into how technological advances have been shaped and have helped shape our current notions of learners, learning, and teaching. These researchers review the dynamic field of new and emerging medias and technologies that have the potential of creating unique, possibly until now unfathomable, themes of research in educational psychology. They trace instructional technology from its behavioristic, computer-administered drill and practice roots, to the influence of

the cognitive science revolution, with its focus on artificial intelligence and analogies to information processing computing paradigms, to more contemporary situated models of contextualized learning, where cognition is not viewed in a straightforward algorithm, but rather as the emergent property of complex systems working in parallel. They review different analogies used to characterize the influence of computers in education. These perspectives independently have viewed the computer as an information source, as a curriculum domain, as a communication medium, as a cognitive tool, as an alternative learning environment, as a learning partner, as a means of scaffolding learning, and as a tool for perspectivity sharing.

Goldman and colleagues point out significant newly emerging paradigms and the concomitant challenges that will ensue from these dynamic new applications. The idea of perspectivity technologies and their “Points of Viewing Theory” is presented with expansions to the notion that computers allow for elastic knowledge construction. The use of social networking as a vehicle for teaching (Goldman & Dong, 2009) is noted, as is the research on interactive and massive multiplayer games as facilitators of learning (Plass, Homer, & Hayward, 2009).

PSYCHOLOGY IN THE SCHOOLS

Students with special needs have long been a focus of research in educational psychology and a major recipient of the applications of research to practice in educational psychology. From the early applications of Binet and colleagues in France (Binet, 1898; Binet & Henri, 1896; Binet & Simon, 1905) and efforts in the United States (Terman & Childs, 1912; Woolley, 1915) in the development of intelligence tests for the identification of student with exceptional needs who would benefit from special education, educational psychology has informed and addressed the needs of exceptional learners and the applications of psychology in schools.

Work here focuses on the contributions of educational psychology on understanding the school-based and developmental needs of exceptional learners. Within this domain we include the field of school psychology, which includes a major emphasis on the evaluation and development of programs and interventions for exceptional learners. Educational psychology has had an impact on the study of individuals with learning disabilities as well as those of high cognitive ability. Investigations in these areas have ranged from basic processes to applied research on intervention programs. Students who demonstrate behavioral

excess represent another important target population for the application of research on classroom management and behavior change supported by educational psychology.

School Psychology

School psychology is a field of psychology that is closely aligned with educational psychology. School psychology is an applied field of psychology, represented in APA by Division 16 (School Psychology) and by other professional organizations, the most visible being the National Association of School Psychologists (NASP). The APA division of School Psychology along with the division of Educational Psychology were among the original 18 divisions created in 1945 with the reorganization of APA. School psychology is dedicated to providing for and ensuring that the educational, behavioral, and mental health needs of children are met in accordance with federal and state legislation. The vast majority of school psychology graduate programs are in departments of educational psychology or schools of education, with most of the remainder found in psychology departments. Similar to the applied and research-based training programs in clinical and counseling psychology, most doctoral training programs follow a scientist-practitioner model, an exception being the unique *scientist-practitioner-scholar* model of training in school psychology formulated by Kratochwill, Gettinger, Reynolds, & Doll, (1988). Gettinger, Brodhagen, Butler, and Schienebeck (this volume) describe how societal events and trends have had a hand in the shaping of school psychology practice and focus over the past century, including events in the early part of the 21st century.

School psychology has been an area of psychology that has experienced a tremendous increase in the number of professionals in the field. Much of the emphasis in the training and practice of school psychology has been directed by the needs of exceptional children in school settings and the guidelines for the provision of services provided by the Individuals with Disabilities Education Act (IDEA) and other federal legislation. There are more than 5 million children and adolescents with educational and emotional disabilities in the nation's schools, representing approximately 1 out of 9 children. School psychologists in the United States have a major role in the direct evaluation and provision of psychological services to these children, illustrating the importance of this branch of psychology to the welfare of young people.

In contemporary school psychology, there has been a major shift in the field from an emphasis on the diagnosis of children referred for learning or behavior problems

to the prevention of school failure and promotion of academic success for all children. Consultation has risen as an indirect service delivery system where school psychologists consult with teachers, families, and other professionals to enable them to address the needs or concerns of individual students and to improve the overall learning environment for all students.

Contemporary and future challenges to school psychology are presented by Gettinger and colleagues. School psychology, as a subspecialty of educational psychology, has been at the forefront of calls for the use of empirically supported interventions (see also Levin & Kratochwill, this volume; Stoiber & Kratochwill, 2000), as well as the recognition of mental health needs of schoolchildren. Gettinger and colleagues' chapter serves to illustrate the importance of school psychology in the education of children and an important application of psychology to education.

Gifted Education Programs and Procedures

Olszewski-Kubilius and Thomson (this volume) review research and policy work focused on defining characteristics of gifted children and how this has important implications for the education of the gifted. In addition to our increased knowledge of the striking capabilities of gifted children, there is increasing evidence of considerable inter and intra individual variance—or asynchronous development (Morelock & Feldman, 1993). Gifted students are a heterogeneous group who differ from each other in their developmental pathways and in their distinct profile of abilities.

Olszewski-Kubilius and Thomson note the dilemma that although talent and giftedness are of interest in our society, there currently is no agreed-on definition of giftedness and no federal mandates to serve gifted children. This has contributed to a confused array of services (or lack thereof) available to gifted children in schools. Olszewski-Kubilius and Thomson describe how different concepts of giftedness that have attained eminence in this field have also sparked a great deal of controversy about the role of IQ or intelligence in defining this construct. They note the paradigm shift in the mid- to late 1980s that “went from viewing giftedness as cognitive characteristics residing within the individual, largely determined by IQ or intelligence, to a focus on talent development as a phenomenon with a developmental trajectory that is complex, varies by domain or field, and is significantly influenced by environmental opportunities and psycho-social factors and characteristics” (pp. 389).

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Similar to other domains within educational psychology, recent research is more focused on the role of culture and context in defining giftedness. Several sociocultural theories of giftedness suggest behavior is only deemed intelligent or talented if it helps an individual to succeed in a particular context and that context defines what is considered success. They refer to Sternberg (this volume; Sternberg & Davidson, 2005) who posits that wisdom is the most important attribute to develop in gifted individuals. Wisdom involves the application of both intelligence and creativity as mediated by values and a focus on the common good. These authors contrast this with performance-based theories of giftedness or talent and the role of deliberate practice that is not necessarily enjoyable as what may distinguish elite performers from less successful ones. They reject the existence of an abstract construct called *giftedness* and instead explain high levels of achievement by focusing on the acquired nature of talent.

This chapter also examines a theory of giftedness that emphasizes talent development (Gagne, 2009) with giftedness as exceptional natural abilities that, although not innate, appear primarily during the early years of children's development and demonstrate significant individual differences without any clear evidence of systematic learning, training, or practice. Natural abilities in at least one of the six ability domains are considered the building blocks of systematically acquired talents. In this way, one can be gifted and not talented; however, one cannot be talented and not gifted. It is possible that one aptitude can be involved in the development of many different talents, and any talent can use abilities from more than one aptitude domain as its constituents (Gagne, 2003, 2005). Such theories de-emphasize the role of general ability as measured by IQ, and instead stress creative achievement. This proposes stage models for the development of talent that show how individuals progress through the stages of talent development, ability, competence, expertise, and scholarly productivity or artistry.

School-Related Behavior Disorders

The field of behavior disorders in children and adolescents has emerged as a major focus of psychologists, teachers, administrators, state and federal governments, and the general public. With the publication and dissemination of the Surgeon General's report derived from a year 2000 national conference on children's mental health and the needs of this population, there was an increased national awareness of the psychological needs of children and

adolescents with behavior problems. Similarly, the needs of children and adolescents with behavior disorders has created a greater need for interventions and adaptations than schools currently can deal with effectively (Shinn & Walker, 2010). As Walker and Gresham (this volume) describe, the widely publicized cases of school shootings and bullying violence by students has galvanized the general public and professionals toward actions aimed at creating safe school environments and an increased acknowledgment of students with extreme emotional and behavioral disturbance, as well as students whose behavioral excess is directed toward their peers. The notion of safe schools is of major concern nationally.

Walker and Gresham provide a critical examination of behavior disorders in children and adolescents by first delineating the current status of the field. This is followed by a discussion of current trends in research and practice in this field that the authors consider to be indicative of best practices, including: functional assessment of behavior, interventions that utilize positive behavioral support, research examining teacher interactions with students with behavior disorders, the association between language deficits and behavior disorders in children, the utility of office referrals as a critical indicator of potential behavior disorders, and resistance to intervention as a cardinal symptom for the determination of treatment eligibility and selection. The authors describe the Positive Behavior Intervention and Supports (PBIS) program, which has demonstrated efficacy in providing services to children with emotional and behavioral disabilities and has been adopted by schools across the nation. Walker and Gresham also describe a number of problems in the field of behavior disorders, most of which are at a policy or practice level. These include: political turmoil in the field of behavior disorders as a specialty area, limited translation of quality research on major problems in the field to everyday practice, and the larger role of creating safe and healthy school environments; the propensity for postmodern and deconstructivist perspectives that devalue scientific research to be adopted by behavior disorder professionals; the general failure of schools to serve the needs of students with behavior disabilities, in part due to interpretation of federal education legislation; and lastly, the relative lack of attention by professionals and leaders in the field to early identification and prevention activities.

Instrumental to the provision of appropriate services is the utilization of well-researched interventions for the treatment of behavior disorders in children and adolescents in school settings. The authors provide an argument for the use of social skills instruction with appropriate

inclusion of procedures to modify maladaptive behaviors, and describe the application of universal intervention programs that may assist in the prevention of more serious emotional and behavioral problems in children and adolescents.

PERSPECTIVES ON EDUCATIONAL PROGRAMS, RESEARCH, AND POLICY

Educational psychology has had a significant role in the development and reform of educational practices. An important contribution of educational psychology is the knowledge and guidance provided to the education of teachers. As noted earlier, courses in educational psychology are required in most university teacher preparation programs. An examination of introductory textbooks in educational psychology shows a strong preference toward teachers as their primary audience. Hoy (2000) observed that it is through textbooks in educational psychology that we can see what the general public and teachers learn about the application of psychology to teaching and related educational activities. The significant breadth of methodological knowledge that educational psychologists bring to the political reform table has been influential in stressing the need for credible school-based intervention research. In this respect, educational psychology acts as the conduit to introduce and apply research and principles of psychology to educational practices. The role of educational psychologists will continue to be an important and credible voice in resolving ongoing controversies critical to the advancement and application of knowledge for educational practice.

Learning and Pedagogy in Initial Teacher Preparation

There is little doubt that teachers in most cases play the ultimate role in the education of children, a responsibility of enormous importance. For the education of young people, teachers are expected to be experts in classroom management, curriculum, and instruction, creating classroom environments that are physically and psychologically motivating, and transmitting knowledge. Learning to teach is arguably one of the most cognitively and emotionally challenging efforts one can undertake and new teachers face greater challenges than ever before with today's diverse student needs, public scrutiny, and political pressures (Whitcomb, this volume). There is a critical need to prepare more teachers than ever before and there are

deeply divided ideas about best practice for initial teacher preparation (Darling-Hammond, Wei, & Johnson, 2009; Hess, Rotherham, & Walsh, 2004). Whitcomb reviews the empirical work on initial teacher preparation, and the multiple perspectives that have emerged over the past 20 years on how to teach future teachers to teach.

What do initial teachers need to know? Whitcomb reviews and synthesizes that large body of work dedicated to establishing teaching as a learning profession (Darling-Hammond, 2006). Teaching is now viewed as a profession with a complex and distinguished knowledge base. Current research is focused on the integrated processes and judgments teachers use to navigate this breadth of information. Whitcomb narrows the focus of this chapter to a critical review of cognitively oriented studies of new teacher's learning. There is an emphasis on what is known about the essential knowledge base for new teachers and how teachers learn across diverse contexts.

From the early 1980s, educational researchers have focused on building an understanding of the specialized knowledge base required to effectively teach content in multiple ways to diverse learners. This work has been strongly influenced by the work of educational psychologists working within social constructivist models that view physical and social contexts as integral parts of any cognitive endeavor. Research in this tradition stresses that the situations and social environments within which they are learned influence skills and that such situated knowledge becomes a fundamental part of what is learned.

Currently there is a move away from studying an individual teacher's knowledge to studies that focus on interactive systems as the unit of analysis (Putnam & Borko, 2000). Recent work has focused on the dispositions that underlie good teaching: how teachers become committed to students, to meeting individual student needs, and to monitoring their own and their students' learning. In this respect, teaching and teachers are viewed as part of learning communities that require judgment and ongoing, flexible decision making to support student learning in culturally inclusive settings. Researchers are now examining how teachers learn to teach—how they actively construct a personal knowledge-base and then use it to guide everyday classroom judgments and learning. These contemporary efforts are critically relevant to initial teacher preparation.

Whitcomb describes the need for attention to critical research that demonstrates the effectiveness of teacher education programs, noting the communalities between this and the general calls for greater rigor in educational programs. She describes this debate as illustrated in

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reports by the National Research Council (Shavelson & Towne, 2002; Towne, Wise, & Winters, 2004), which sought to determine what constitutes empirically based practice and how this should inform practice. Teacher education, which as many of the chapters in this volume suggest, is tremendously complex given the multiplicity of learner, environment, and teacher characteristics and their interactions.

In reviewing the research on teacher education, Whitcomb focuses on current research on beginning teachers or teacher candidates, with particular reference to research based on cognitive or “situative” psychological foundations. Initial teacher preparation has substantially changed over the past two decades in multiple domains of instruction as new learning environments are developed and the changing influence of social and digital media on student as well as teacher learning is integrated into curriculums. Whitcomb builds on the work of others in educational psychology (e.g., Borko & Putnam, 1996; Putnam & Borko, 1997, 2000), and also examines the field of initial teacher preparation and how this field determines whether a teacher candidate meets the standards of the profession. This latter issue is of major importance, given that national mandates for student education, such as No Child Left Behind, include a significant focus on the role and competence of teachers in the education of students.

The chapter ends with a critical analysis of the limits of current research and the need for stronger empirical work to enhance our understanding of initial teacher pedagogy in the future. The conclusion drawn from this review is that educational psychologists are in a unique position to influence and conduct rigorous inquiry that will further unravel the complexity of teaching and contribute to the development of effective initial teacher preparation models.

Educational Programs, Research, and Policy

Educational psychology has, for more than a century, been at the forefront in the development of research methodologies and statistics. Educational psychologists have been active in the fields of educational measurement, statistics, and research designs, and in the application of these methodologies to educational programs and policy. Notable journals in this field include the *Journal of Educational Measurement*, *Educational and Psychological Measurement*, *Journal of Educational Statistics*, *Applied Psychological Measurement*, *Educational Assessment*, and others that have as a primary focus the presentation of new measurement, statistical, and research methodologies. In the chapter by Levin and Kratochwill (this volume), a

provocative argument is made that stresses the need for more credible, rigorous standards in the conceptualization, design, and evaluation of educational/psychological treatments and interventions. Levin and O’Donnell (1999), after reviewing the thoughts of many prior editors and presidents representing the field of educational psychology, noted collective concerns about the nature and quality of educational research and the preparation of the next generation of researchers.

Educational psychology, more than ever before, is expected to improve our ability to understand, predict, and control human behavior as well as our ability to design instructional practices with potential applications to problems of schooling. Recognizing the inherent difficulties in conducting educational research and the importance of bridging many different communities across a wide array of academic disciplines, there was a call for a broader array of naturalistic and empirical methodologies, ranging from case studies and observations to multivariate designs and analyses (Wittrock, 1994). Contemporary methodological debates about qualitative and quantitative or applied and basic inquiry oversimplify and trivialize the issue of how to best obtain quality supportive evidence using a variety of rigorous inquiry standards that could be reflected in any methodological orientation.

This past decade has seen a broad mandate in most fields of psychology and education for the development and documentation of evidence-based interventions and practices (e.g., American Psychological Association Presidential Task Force on Evidence-Based Practice, 2006; American Psychological Association Presidential Task Force on Evidence-Based Practice for Children and Adolescents, 2008; Kratochwill & Shernoff, 2003). The focus on empirical evidence for interventions was highlighted by Levin and Kratochwill in their examination of four prototypic research designs that permeate the literature: the case study, the demonstration study, observational/correlational studies, and design research.

The acronym CAREful research is used to review components of scientific integrity that can enhance the evidence credibility of educational research. A framework for conceptualizing different stages of such research is forwarded and promising methodological developments in instructional research are reviewed. Preliminary phases of inquiry place a fundamental value on subjective, reflection, intuition, and observation as important steps for guiding further inquiry using objective, scientifically credible methodology in order to make valid prescriptions for future intervention. These authors also argue that just as medical research requires credible evidence of therapeutic

benefits, so do educational and psychological research. Trustworthy and credible instructional research to assess the relative impact of educational and psychological treatments or interventions is of critical importance for policy makers. Indeed, as Levin (1994) eloquently argued, the future viability of the field will depend on our ability to craft educational intervention research that is both credible and creditable. This is a continuing conundrum for the field. The development of such innovative methodological continuums should become a top priority for future educational researchers. Likewise, the need to adopt educational programs and interventions that have proved credible based on scientifically viable methodology continues to be a significant issue in education.

Educational Psychology and Educational Transformation

Educational psychology as a discipline has from its inception sought to inform and help guide the education of students and the development of local and national education policies and reforms. Educational psychology has accomplished this by maintaining a strong linkage to credible school-based research and associated methodologies. McCombs (this volume) illustrates how research in educational psychology can be translated to changes in educational practice, with a particular reference to how teachers can be informed by research to modify and enhance their classroom and instructional procedures.

McCombs discusses learner-centered instruction (McCombs, in press; McCombs & Whisler, 1997; McCombs & Miller, 2007), a set of practices that are designed to enable teachers to gain an understanding of cognitive and metacognitive factors in learning, motivational and emotional influences on learning, developmental and social influences on learning, and individual differences in learning and evaluation (APA Work Group of the Board of Educational Affairs, 1997). These principles were designed to provide teachers with a set of practices that focus on the learner, including an understanding of individual differences and diversity of learners and learner styles. The principles originated with the 1990 appointment by the American Psychological Association of a Task Force on Psychology in Education that sought to provide for the application of psychological research and theory to learning in educational contexts. Research over the past several decades on learner-centered practices that confirms the impact of teacher-centered instruction on positive students' and teachers' positive emotions in school settings (McCombs & Miller, 2007).

McCombs (this volume) discusses current and emerging principles in the field that have been derived from more integrated educational psychological research occurring across diverse fields. The ideas she has illuminated encourage both new and current researchers to engage in collaborative efforts using innovative research models and methods that have the greatest potential of impacting research, practice, and policy. The educational transformation ideas she has forwarded have a strong basis in new learning technologies and professional development models for the 21st century. Similar to research discussed by other contributors, McCombs notes that research continues to reveal the social nature of learning along with sociocultural and other contextual factors. As example, she cites Lee and Shute (2010) who reviewed personal and socio-contextual factors affecting the performance of K–12 children and concluded that personal factors (behavior, affect, attitude, and cognition) as well as their sociocontextual environment as predictors worked together to create optimal school performance, particularly in the areas of reading and mathematics. This chapter clearly delineates the interaction between educational research and policy, and encourages both new and current researchers to engage in collaborative efforts using innovative research models and methods that have the greatest potential of impacting educational research, practice, and policy.

Future Perspectives in Educational Psychology

In writing their chapters for this book, contributors were asked to provide insight as to what future trends and directions were anticipated for their respective field of inquiry. By synthesizing these ideas, Miller and Reynolds (this volume) sought to highlight critical theoretical, research, and practical issues likely to inform and direct the field of educational psychology well into the 21st century. Seven thematic areas were identified that are likely to continue to impact theory and application and to influence and inform educational researchers, practitioners, and policy makers well into the future. The issues within these areas uniformly surfaced across a majority of chapters and are considered due to their potential of advancing our understanding of individual learners and learning contexts; interpersonal, relational, and instructional processes; curriculum development; and teacher preparation. Implications are presented for translating theory into educational practice supported by exemplars posed by authors in this volume.

The chapter concludes with an overview of prospective issues relevant to transforming a vast empirical

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knowledge base into sound educational policy and practice. The research advances highlighted within each of these areas have been linked to effective schooling and improved school outcomes for a broad range of students and clearly point to exciting educational recommendations.

A strong conclusion is drawn that the work of educational psychologists is likely to play an even greater future role in guiding 21st-century educational policy and reform to improve schooling outcomes for all children.

SUMMARY

Educational psychology focuses in large part on the application of psychology to the understanding of learners and learning environments. However, such a broad generalization of the field does not do justice to the myriad of domains and applications represented by this field of psychology. As this introduction to the field and to this volume in the *Handbook of Psychology* illustrates, the field of educational psychology represents an important area of psychological research, theory, and practice.

The five major areas of contemporary research and practice in educational psychology covered in this volume include cognitive and regulatory contributions to learning, development, and instruction; sociocultural, instructional, and relational processes; early education and curriculum applications; psychology in the schools; and educational programs, research, and policy. The individual chapters within these broad areas provide for coverage of nearly all the domains identified by Pressley and Roehrig as having the most significant impact on the field of educational psychology.

Individually, each chapter describes a rich domain of research, and almost universally, each notes a burgeoning of new research paradigms, perspectives, theories, and major conceptualizations that have emerged over the past 20 years as well as the renewed emphasis on scientifically sound research methodologies. It is noteworthy that some of these new insights into human behavior and psychology applied to education have been predicated on recognized and acknowledged contributions made by psychologists (e.g., Vygotsky) in the early part of the 20th century. Although the scope of educational psychology as a field of psychology is quite broad, there are numerous communalities that can be seen across the varied chapters of this volume. These communalities suggest a connectedness that supports educational psychology as a rich and vital field of scientific inquiry.

The influence and impact of research in educational psychology on society is probably best recognized by applications to the education and training of teachers and the development of procedures to enhance classroom instruction and learning, how we motivate learners, and the integration of new technology into the classroom and beyond. These and other applications in educational psychology are buttressed by an empirical rigor of research methods in the design of both basic and applied experiments and field-based investigations. It is evident that researchers in educational psychology are addressing major issues related to the education of learners in regular and special education contexts. In addition to the impact of educational psychology on learning and learners, it has also played a major role in informing policy and educational reform.

The mosaic of educational psychology is well represented by the authors of this volume and their respective chapter contributions. The sum of knowledge presented in the chapters of this volume illustrates the diversity of research and practice domains. This introduction to current perspectives in educational psychology provides a snapshot of the breadth and scope of this field but does not do justice to the depth of research and applications. For the latter, the following chapters provide excellent description, evaluation, and synthesis. The dynamic nature of this field of psychology is evident across the chapters and serves to illustrate the importance of educational psychology research and practice to individuals and society. It is our expectation that this importance will continue and grow in the 21st century.

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