Barry J. Zimmerman
Dale H. Schunk
Editors

Self-Regulated Learning and Academic Achievement
Theory, Research, and Practice

Progress in Cognitive
Development Research

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and Academic Achievement

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Series Editor
Charles J. Brainerd

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Series Editor: Charles J. Brainerd
(recent titles)

The ultimate goal of the educational system is to shift
to the individual the burden of pursuing his own education.

JOHN W. GARDNER
Former Secretary of Health,
Education, and Welfare

Series Preface

For some time now, the study of cognitive development has been far and away the most active discipline within developmental psychology. Although there would be much disagreement as to the exact proportion of papers published in developmental journals that could be considered cognitive, 50% seems like a conservative estimate. Hence, a series of scholarly books to be devoted to work in cognitive development is especially appropriate at this time.

The *Springer Series in Cognitive Development* contains two basic types of books, namely, edited collections of original chapters by several authors, and original volumes written by one author or a small group of authors. The flagship for the Springer Series is a serial publication of the "advances" type, carrying the subtitle *Progress in Cognitive Development Research*. Volumes in the *Progress* sequence are strongly thematic, in that each is limited to some well-defined domain of cognitive-developmental research (e.g., logical and mathematical development, semantic development). All *Progress* volumes are edited collections. Editors of such books, upon consultation with the Series Editor, may elect to have their works published either as contributions to the *Progress* sequence or as separate volumes. All books written by one author or a small group of authors will be published as separate volumes within the series.

A fairly broad definition of cognitive development is being used in the selection of books for this series. The classic topics of concept development, children's thinking and reasoning, the development of learning, language development, and memory development will, of course, be included. So, however, will newer areas such as social-cognitive development, educational applications, formal modeling, and philosophical implications of cognitive-developmental theory. Although it is anticipated that most books in the series will be empirical in orientation, theoretical and philosophical works are also

welcome. With books of the latter sort, heterogeneity of theoretical perspective is encouraged, and no attempt will be made to foster some specific theoretical perspective at the expense of others (e.g., Piagetian versus behavioral or behavioral versus information processing).

C. J. Brainerd

Preface

There are nearly 1,000 self-hyphenated words in the English language (English & English, 1958) that describe how individuals react to and seek to control their own physical, behavioral, and psychological qualities. People are clearly fascinated with understanding and regulating themselves—a characteristic that many philosophers, theologians, and psychologists believe most distinguishes humans as a species.

Recently the search for self-understanding and self-regulation has turned to learning and academic-achievement processes. As an organizing concept, self-regulated learning describes how learners cognitively, motivationally, and behaviorally promote their own academic achievement. Theories that can deal effectively with all three dimensions of students' ability to learn by themselves are needed in order to solve such difficult contemporary educational problems as inadequate facilities and high student dropout rates. As a topic of research, self-regulated learning challenges cognitive theorists to explain why and how students learn on their own; conversely, it challenges motivational and behavioral theorists to explain what students need to know about themselves and academic tasks in order to learn independently.

This book grew out of a series of symposia held at several annual meetings of the American Educational Research Association. The papers of the participants at the first symposium were published in 1986 in *Contemporary Educational Psychology*. Because of time constraints, these initial accounts focused on selected aspects of self-regulated learning. Our goal in organizing the book was to provide a forum in which comprehensive descriptions of self-regulated learning theories could be presented along with supporting evidence.

This goal led to several decisions that shaped the book's form. First, we wanted an integrated series of chapters that would survey the field rather than a collection of disparate descriptions of individual programs of research. To achieve this, an organizational structure for each chapter was provided to guide the contributors. The use of a common format gave cohesiveness to the book, making it appropriate as a text for graduate and advanced undergraduate students in such fields as educa-

tion, psychology, public health, and behavioral medicine. Second, we wanted each chapter to focus not only on theory and research in self-regulated learning but also on instructional practice. Authors were asked to give specific examples of how teachers or parents might apply their proposed procedures to youngsters with self-regulation deficiencies. Third, we wanted the text to be of value to a broad spectrum of readers. The contributors represent a diversity of theoretical traditions—operant, phenomenological, social cognitive (learning), volitional, Vygotskian, and constructivist. By presenting such a range of viewpoints, the common features of self-regulated learning approaches emerged clearly and distinctively.

Finally, we wanted a lively book that would be readable by an audience interested in the field of education but without necessarily having a background in self-regulated learning. The contributors were asked to address their chapters to such an audience, and we were delighted in the success they achieved: Not only were the chapters readily understandable and interesting, but they also laid out important new theoretical ground.

In closing, there are many people who deserve credit for making this book possible. First and foremost, we wish to express our gratitude to our contributors. Their conscientiousness and good spirit made our job as editors personally and professionally rewarding. Second, our series editor, Charles J. Brainerd, deserves special commendation. His encouragement, editorial suggestions, and support were invaluable in making this book a reality. Third, to our wives, Diana and Caryl, your patience and understanding were greatly appreciated. Finally, we would like to acknowledge our great debt to Albert Bandura whose pioneering work in the field of self-regulation was our inspiration.

Barry J. Zimmerman
Dale H. Schunk

Prologue

For reasons that were at once political, practical, and philosophical, the concept of self-reliance is deeply embedded in our nation's history. This virtue was to be cultivated personally to enhance erudition and civility as well as promote economic survival. A notable example of self-regulation among early Americans was Benjamin Franklin who wrote prolifically on this topic. *His Autobiography* (*Benjamin Franklin Writings*, 1987) is replete with examples of processes designed to increase his learning and self-control. For example, he used *self-recording* techniques in order to develop 13 virtues such as temperance, order, and resolution. He kept a little book in which he allotted a page for each virtue. Every evening, he recorded the date and frequency of a transgression against each of the vouchers for that day. By examining his records over a span of time, he could judge his progress in becoming more virtuous.

In addition to self-recording, he set daily *goals* for himself.

I determined to give a Week's strict Attention to each of the Virtues successively. Thus in the first Week my great Guard was to avoid even the least Offense against Temperance, leaving the other Virtues to their ordinary Chance, only marking every Evening the Faults of the Day. Thus if in the first Week I could keep my first Line, marked T, clear of spots, I suppos'd the Habit of that Virtue so much strengthen'd, and its opposite weaken'd, that I might venture extending my Attention to include the next, and for the following Week keep both Lines clear of Spots. (p. 1387)

Franklin sought to improve his writing through the self-selection of *models* and through *enactive efforts* to imitate the author's prose.

About this time I met with an odd volume of the Spectator. . . . I thought the Writing was excellent, & wish'd if possible to imitate it. With that View, I took some of the Papers, &. making short Hints of the Sentiment in each Sentence, laid them by a few Days, and then without looking at the Book, try'd to compleat the Papers again, by expressing each hinted Sentiment at length . . . Then I compar'd my Spectator with the Original, discover'd some of my faults & corrected them. (p. 1319)

In addition to teaching himself to write, Franklin credited this procedure with improving his memory and his "arrangement of thoughts" (p. 1320). The latter two metacognitive outcomes have been called *memory and rehearsal* and *planning and organization* respectively in contemporary research.

These examples of Franklin's personal use of specific self-regulation strategies to increase what he termed "self-reliance" in the eighteenth-century language revealed how a poor printer's apprentice could acquire exemplary competence, erudition, and personal virtue despite humble beginnings. Self-regulation empowered individuals with limited formal education and meager material resources to succeed in America on a scale unattainable elsewhere.

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Contents

1. Models of Self-Regulated Learning and Academic Achievement

Barry J. Zimmerman

Research on self-regulated academic learning has grown out of more general efforts to study human self-control or self-regulation. Promising investigations of children's use of self-regulation processes, like goal-setting, self-reinforcement, self-recording, and self-instruction, in such areas of personal control as eating and task completion have prompted educational researchers and reformers to consider their use by students during academic learning. In this initial chapter, I will discuss self-regulation theories as a distinctive approach to academic learning and instruction historically and will identify their common features. Finally, I will briefly introduce and compare six prominent theoretical perspectives on self-regulated learning — operant, phenomenological, social cognitive, volitional, Vygotskian, and cognitive constructivist approaches — in terms of a common set of issues. In the chapters that follow, each theoretical perspective will be discussed at length by prominent researchers who have used it in research and instruction.

Contributors to this volume share a belief that students' perceptions of themselves as learners and their use of various processes to regulate their learning are critical factors in analyses of academic achievement (Zimmerman, 1986). This proactive view of learning is not only distinctive from previous models of learning and achievement, but it also has profound instructional implications for the way in which teachers plan their activities with students and for the manner in which schools are organized. A self-regulated learning perspective shifts the focus of educational analyses from student learning abilities and environments at school or home as fixed entities to students' personally initiated strategies designed to improve learning outcomes and environments.

The Emergence of Theories of Self-Regulated Learning

In order to appreciate the unique qualities of self-regulated learning approaches to student achievement, a brief historical overview of several theoretical models that have guided previous efforts to reform American education will be presented. Each

of these prior efforts to improve our nation's schools has been guided by a distinctive view of the origins of students' learning and how instruction should be organized to optimize their achievement. These views grew out of public perceptions of emerging national goals at the time and shortcomings of the existing educational system in meeting those goals.

Changing Views of the Causes of Student Learning and Achievement

During the post-World War II period, instruction in American schools was heavily influenced by mental-ability conceptions of student functioning. Thurstone's (1938) development of the Primary Mental Abilities Test was widely hailed as providing the definitive factorial description of the full range of student abilities. Once properly tested, students could be classified and placed in optimal instructional settings such as reading groups in elementary school or achievement tracks in secondary schools. Teachers were asked to gear their curriculum to the ability level of each group of students they taught. Cronbach (1957) presented a formal analytic framework for determining the potential benefits of matching the right type of instruction to each student ability or interest, which he termed an ATI formulation, an acronym for Aptitude (ability or attitude) by instructional Treatment Interaction. The label referred to Cronbach's suggested method for statistically analyzing the results, an analysis of variance model. This formulation prompted educational researchers to investigate scientifically many instructional innovations, such as matching instructional procedures, to student ability groups. Although interest in this analysis of instructional effectiveness continues to the present, the research generated by ATI analyses has been generally considered to be disappointing (e.g., Bracht, 1970).

During the early 1960s, social environmental formulations of student learning and achievement rose to prominence. The zeitgeist for reform was fueled by Hunt's (1961) and Bloom's (1964) influential books on the importance of early experience on children's intellectual development and by Lyndon Johnson's War on Poverty. Educational reformers focused their attention on "disadvantages" in the intellectual environment of the home of poor children (e.g., Hess, 1970), and the disparity between this home environment and the curriculum and atmosphere of schools. Given evidence of lower self-esteem by lower-class children (e.g., Rosenberg, 1965), humanistic psychologists and educators like Holt (1964), Rogers (1969), and Glasser (1969) proposed a variety of reforms designed to make school more relevant and less threatening to them. They recommended less reliance on grading for promotion, more flexible curricular requirements, more concern about students' social adjustment, and more efforts to involve the parents and families of students in the schools. Head Start was begun as an effort to provide for disadvantaged children's lack of exposure to the "hidden curriculum" provided by the home of middle-class youngsters, and the Follow Through Program (U.S. Office of Education, 1973) was