Some students thirst for learning. They seek challenges and overcome obstacles sometimes with persistence and sometimes with inventive problem solving. They set realistic goals and utilize a battery of resources. They approach academic tasks with confidence and purpose. This combination of positive expectations, motivation, and diverse strategies for problem solving are virtues of self-regulated learners. We seek to understand and nurture the development of these attitudes in order to prevent students from rejecting the values of education, devising shortcuts to complete assignments, and setting minimal performance goals.

This volume includes a variety of chapters that seek to understand self-regulated learning from different theoretical perspectives. Our charge is to articulate a cognitive constructivist account of self-regulated learning. On the one hand, a constructivist account is a theory of students’ competence, that is, what they know and are capable of doing in the classroom. On the other hand, self-regulated learning within this account is concerned with enhancing academic performance and adapting to school. Therefore, our chapter combines theories of competence and performance. Using the metaphor of children as scientists, we consider how students construct theories of their academic competence, effort, tasks, and strategies. Each of these theories embodies the principles of constructivism that we outline initially. As children acquire progressively refined concepts of their academic learning, they integrate this information into an emerging theory of self-regulated learning that becomes a functional guide for their own performance.

In the first section, we outline the principles of a constructivist account of cognition and learning. In the second section we illustrate these principles in students’ construction of a theory of self-regulated learning. In the third section, we trace the developmental integration of knowledge and actions in self-regulated learning and how instruction facilitates the organization of information. Next we consider adaptive learning, in particular, how students cope with failure. As we bridge a theory of competence with a theory of performance, we identify a variety of psychological
constructs such as self-efficacy, metacognition, and attributions that help us understand how students construct theories of self-regulated learning.

Principles of a Cognitive Constructivist Approach

Some readers may react to the phrase constructive cognition with a response, "What other kind is there?" During the past 100 years, however, psychology has witnessed a variety of alternatives. One extreme is characterized by a structuralist approach to cognition that emphasizes innate categories of knowing and concepts that are imposed by individuals upon the world. These include fundamental properties of perceptual relations (Gibson, 1966), the structure of language (Chomsky, 1965), and basic categories such as numerosity and animacy (Keil, 1982). The polar opposite of structuralism is usually considered to be empiricism. The empiricist approach to cognition emphasizes how experiences imprint the structure of the world into the minds of individuals. In this approach, cognition is a passive process devoted to copying the structure of the objective world and children are viewed as realists with relatively accurate views of the world. Both of these extreme positions offer alternatives to a constructivist perspective.

A variety of structuralist and empiricist theories of learning have been offered during the twentieth century, along with many hybrids. For example, associationistic, behavioral, and reinforcement theories have been derived from the empiricist tradition (Fodor, 1975). Conversely, linguistic, perceptual, and comparative theories of learning can often be traced to structuralist traditions. But cognitive constructivist accounts, like Piaget's theory, mix elements of these different positions in order to describe the interaction between the progressive competence of the organism and the opportunities provided by the environment. Constructivist approaches describe how people transform and organize reality according to common intellectual principles as a result of interactions with the environment.

There are several distinctive roots of a constructivist approach to self-regulated learning. One path can be traced to Gestalt theories of perception that have emphasized principles of closure, organization, and continuity. The Gestalt principles reveal that cognition imposes organization on the world and people do not interpret bits of data separately. A second tradition to constructivism comes from the forerunners of cognitive psychology. For example, Bartlett's (1932) research on memory and communication illustrated how adults supply missing information consistent with their background knowledge. Like the Gestalt principles of perception, memories and communication become more, and not less, organized with progressive reconstructions. Bartlett (1932) demonstrated that subjects interpret what they hear and remember according to their schemata and expectations.

A third tradition springs from theories of intellectual development. Beginning with Baldwin and Binet in the nineteenth century and continuing with Piaget's pioneering work, many scientists have espoused the view that intellectual development is a result of adaptations to environmental pressures. Adaptation is indicated by the development of more sophisticated ways to represent and organize informa-