Cognitive Efficacy Across the Life Span: Introduction to the Special Series

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A brief background and the rationale for examining personal beliefs of efficacy and control as related to adulthood cognition and memory are presented in this introduction to the special series. The research presented in the series draws on theory and research from several fields, including personality and social psychology, child development, and social learning and cognition. Although particular emphasis is placed on the self-efficacy construct (Bandura, 1977) and its utility in studying cognitive behavior in adults, this introduction also highlights related work on achievement behavior in children (e.g., Dweck, 1975, 1986; Schunk, 1981, 1982). The series comprises four empirical articles and one conceptual commentary. In the commentary, Bandura argues that self-efficacy judgments are powerful determinants of, yet are also determined by, human cognition, affect, and behavior. It is this theoretical framework that guided the research presented in this series.

The five articles that make up this special series share the general premise that personal beliefs are related integrally to behavior and that this relationship changes with age. More specifically, these articles focus on the nature and function of self-beliefs of personal efficacy and control as they are related to cognition in adulthood. The model on which these studies are based assumes that self-knowledge of abilities derives from, yet also determines, behavior in a dynamic and mutually reciprocal developmental process. This model is consistent with a contextual approach to cognitive development wherein chronological age per se is no longer regarded as a sufficient explanation for age-related variance in cognitive performance. Instead, the roles of task, person, and situational variables have gained recognition as critical components for understanding cognition in adulthood (Arbuckle, Gold, & Andres, 1986; Crall, Byrd, & Swanson, 1987; Hartley, 1986).

Within a life span developmental context, the influences of three major fields of research are apparent in the four empirical articles in this series. The overarching influence comes from personality and social psychology, especially the area of individual differences. Here, individual differences in personal control and efficacy beliefs (e.g., Bandura, 1977, 1986; Rotter, 1966), goal-orientation (e.g., Dweck, 1975, 1986), and attributional style (e.g., Weiner, 1979, 1985) are thought to affect performance behaviors and outcomes. For example, an individual who believes that she or he controls the outcome of a demanding cognitive task would perform differently than one who believes performance outcomes are determined by factors beyond one's control. Thus, individual differences on a given personality dimension (e.g., high vs. low self-efficacy, internal vs. external locus of control) produce differences in behavior. Lachman has promoted this concept in adulthood and aging research, with early work on generalized dimensions of personality (e.g., motivation, anxiety) that are related to intellectual ability (M. E. Lachman, Baltes, Nesselroade, & Willis, 1982) and more recent work on personal control and cognition (M. E. Lachman, 1986).

At the other end of the life span, Dweck's work on achievement behavior in children has yielded a comprehensive model of the effects of individual differences in goal orientation on cognitive skill acquisition and use (Dweck, 1975, 1986; Licht & Dweck, 1984). In this model, children's beliefs that intelligence is either fixed or malleable determine the nature of their achievement-related efforts (e.g., giving up vs. persisting on difficult tasks) and goals (e.g., seeking evaluation of their ability vs. learning new skills).

The second major influence derives from social learning and cognition traditions and represents one of the most promising approaches to the study of personal control. Specifically, all of the articles draw on Bandura's (1977, 1982, 1986) self-efficacy theory as part of their conceptual framework. Self-efficacy theory has spawned research on age groups across the life span, covering multiple behavioral domains, including academic achievement, interpersonal relationships, career goals, health-related behavior, athletic performance, parenting styles, and a host of clinical disorders. In the fields of child development and education, Schunk and his colleagues (Bandura & Schunk, 1981; Schunk, 1981, 1982; Schunk & Gunn, 1986; Schunk, Hanson, & Cox, 1987) have done some of the most exhaustive work on achievement-related (specifically, mathematics) self-efficacy in children. These studies have examined the effects of self-efficacy on the quantity (time spent) and quality (task strategies used) of effort spent on mathematics tasks by children in the classroom and, in turn, how self-efficacy and effort affect mathematics performance. Moreover, this work has examined important sources of efficacy information, such as model attributes (e.g., peer vs. teacher, gender, number of models, perceived similarity to model), style of modeling skill acquisition behavior (e.g., "gradual, coping" style vs. "first-attempt, mas-
tory,” style), goal setting (proximal vs. distal), and attributional feedback (e.g., effort attribution for past or future successes). Taken together, Schunk’s studies complement work by Dweck (1975) and Andrews and Debus (1978) on the effects of attributional style on task-related cognitions and behaviors. The common theme throughout these studies is a focus on the cognitive processes that mediate children’s achievement-related behaviors.

In other child development research, Kaley and Cloutier (1984) reported that accuracy of efficacy appraisals changes with age. They found that prediction accuracy for performance on a difficult fine motor task increased in children from preoperational to concrete and formal operational levels of cognitive development. This study raises the following question: At what developmental level or age does prediction/performance accuracy peak? This question is raised in light of gerontological studies that report negative relationships between adult age (e.g., 20 vs. 69 years old) and prediction/performance accuracy on memory tests (e.g., Murphy, Sanders, Gabriesheski, & Schmitt, 1981). Kaley and Cloutier proposed that preoperational children fail to recognize or weigh the influence of relevant task characteristics in their performance estimates. Similar conclusions have been offered to explain adulthood age differences, but the source may be unfamiliarity or inexperience with the task rather than a developmental change (i.e., decrease) in cognitive complexity.

What is the broader picture? Ideally, cross-sectional and, ultimately, longitudinal studies should examine the developmental trajectories of efficacy expectations and accuracy from childhood through old age in diverse domains. Thus, in addition to the cognitive domains (i.e., memory, mathematics, and intelligence) described here, studies of efficacy for social and physical abilities would probably yield interesting developmental differences in terms of perceived competence. Harter (1982) conducted work related to perceived self-efficacy. She developed a Perceived Competence Scale for Children (PCSC) that measures perceived physical, social, cognitive, and general competence. In addition to demonstrating satisfactory psychometric properties, children’s PCSC scores relate to intrinsic and extrinsic motivation on objective indices of competence. Moreover, Cauce’s (1987) study of school and peer competence in lower-income, Black preadolescents supported the domain-specificity of Harter’s scale and its relation to objective indices of competence. These studies lend support to the social cognitive model developed by Dweck (1986) and the distinction that she makes between the different motivational processes related to learning and performance orientations.

It has been only relatively recent that self-efficacy concepts have been applied toward understanding behavior in older adults. Rehok and Ollermann (1983) made compelling arguments for a self-efficacy analysis of older adults returning to the classroom, and Holahan and Holahan (1987) reported on the relationship between self-efficacy, depression, and social support in older adults. The present series examines the usefulness of self-efficacy principles for explicating memory and intellectual behavior across the adult life span.

The third influence, borrowed from the child development literature, is metacognition, or, more broadly, metacognition (Baker & Brown, 1981; Cavanaugh & Perlmuter, 1982; Flavell, 1971; Flavell & Wellman, 1977). Flavell and Wellman described the increases in metacognitive processes (e.g., memory monitoring, strategy usage) from early to late childhood as possible explanations for concomitant improvements in memory performance. Consequently, some gerontological researchers began to investigate whether decreases in memory functioning in old age were at least partially attributable to deficient metacognitive processing. Perlmuter (1978) published the first investigation of metacognition in older adults, with other studies appearing shortly thereafter (Bruce, Coyne, & Botwinick, 1982; Dixon & Hultsch, 1983a, 1983b; J. L. Lachman, Lachman, & Thronesbery, 1979; Murphy et al., 1981). Initially, these studies were based on the hypothesis that older adults retain knowledge about how memory works but do not necessarily apply effective memorizing strategies when faced with a memory-demanding task. Moreover, it was hypothesized that older adults failed to monitor during memorization and were unable to predict performance outcomes accurately. As research accumulated, the distinction between knowledge about how memory works and self-knowledge of memory abilities seemed particularly relevant for older adults. If the memory system becomes increasingly unreliable with increased age, older adults may lose confidence in their memory abilities in the face of memory failures and begin to behave differently in memory-demanding situations. For example, they may participate less enthusiastically in conversations with friends if they are unsure of information that they wish to share or may even begin to avoid completely social settings that tax or test memory. In this series, memory self-efficacy is viewed as one facet of the broader construct, metacognition.

The idea for this series was born out of the 1987 American Psychological Association annual convention at a symposium entitled “Cognitive and Memory Self-Efficacy in Adults.” Jane Berry and John Cavanaugh cochaired the session, with Paul Baltes and Marion Perlmuter as discussants. Research from the four empirical articles included in this series was presented. The purpose of the symposium was to examine (a) measurement of the memory self-efficacy construct, (b) the effects of memory self-efficacy judgments on memory performance and vice-versa, and (c) developmental change in personal control/efficacy, intellectual functioning, and their relationship in a longitudinal analysis. Toward this end, Hertzog, Hultsch, and Dixon (1989, pp. 687–700), and Berry, West, and Denney (1989, pp. 701–713) present research addressing measurement issues. Hertzog et al. have identified memory self-efficacy as a distinct component of metacognition, as measured by two widely used measures of metacognition in adulthood. Their conceptual definition and measurement of memory self-efficacy is more general than that of Berry et al., who adopted the task-specific approach inherent in Bandura’s self-efficacy methodology. Rehok and Balcerak (1989, pp. 714–721) report on adult age differences in memory self-efficacy and how memory task experience influences the efficacy/performance relationship. The fourth article represents a departure from, yet is conceptually consistent with, the first three in two important ways. Specifi-
cally, M. E. Lachman and Leff (1989, pp. 722–728) examine
generalized personal control related to intellectual abilities (vs.
memory) in older adults using a longitudinal (vs. cross-sectional)
design.

The fifth article included in the series provides a thoughtful
and critical commentary by Bandura (1989, pp. 729–735) on
self-efficacy as applied to cognition in adulthood. The notion
of self-efficacy as a dynamic cognitive process with specific
behavioral and affective correlates is emphasized in light of
changes in cognitive functioning across the life span. In an
earlier article, Bandura (1981) discussed the developmental ante-
cedents and manifestations of self-efficacy in childhood, adoles-
cence, adulthood, and old age. In the present commentary to
this series, he concludes with thoughts on the maintenance of
self-efficacy beliefs into old age through appropriate social com-
parison processes and possible realignment of the weights or
value placed on different domains of functioning as people age.

Bandura’s latter conclusion warrants further comment. Con-
sistent with the individual differences approach, it is obvious
that not all older adults experience memory difficulties, or, if
they do, those difficulties are not perceived as such—that is,
they do not impede daily functioning and do not represent a
threat to self-esteem. Research on the relationship between
beliefs and behavior has less relevance for this segment of the aging
population. There are, however, many older adults for whom
memory deterioration represents a significant life change.
These older adults express concern about their memories and
interest in forestalling or preventing additional decline. Re-
search is needed that identifies those components of memory
functioning that are malleable and can be incorporated into ap-
plied programs that are designed to improve memory function-
ing in older adults. The articles presented here represent some
of the initial basic research in this area. As noted earlier, future
research should focus on the broader age range, with the goal of
developing a more encompassing life span developmental the-
ory of memory self-appraisal. In the meantime, and perhaps
more modestly, it is hoped that further research will add to the
present body of knowledge by clarifying (a) which individuals
are best served by memory enhancement programs, (b) which
domains within memory and, more broadly, cognition are most
problematic and, therefore, should be targeted, and (c) which
methods are most effective for maintaining positive or changing
negative self-efficacy beliefs.

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1990 APA Convention “Call for Programs”

The “Call for Programs” for the 1990 APA annual convention will be included in the October issue of the APA Monitor. The 1990 convention will be held in Boston, Massachusetts, from August 10 through August 14. Deadline for submission of program and presentation proposals is December 15, 1989. This earlier deadline is required because many university and college campuses will close for the holidays in mid-December and because the convention is in mid-August. Additional copies of the “Call” will be available from the APA Convention Office in October.