Perceived Control and the Development of Coping

Ellen A. Skinner and Melanie J. Zimmer-Gembeck

Abstract

Perceived control is a powerful resource when dealing with stressful life events. Research on perceived control (in all its guises, including locus of control, self-efficacy, causal attributions, confidence, and perceived competence) documents its role in supporting constructive mastery-oriented coping at all points in the lifespan. Likewise, research at every age reveals the vulnerabilities induced by a sense of helplessness and loss of control, and documents their effects in undermining how people deal with difficulties and failures. This chapter uses work on the development of perceived control to help guide the developmental study of coping, examining (1) how mastery-oriented and helpless ways of coping may change in their form across infancy, childhood, adolescence, adulthood, and old age; (2) how the development of perceived control may contribute to qualitative shifts in how coping is organized as people age; and (3) how coping itself may constitute a proximal process that shapes the development of perceived control. Throughout the chapter, a multi-level systems view on the development of coping is highlighted, with a strong emphasis on the role of social partners, relationships, and contexts in shaping both coping and perceived control.

Keywords: perceived control, self-efficacy, coping, aging, social factors

The controllability of stress appears to be information that may be processed at an automatic and a conscious level and serves to shape and organize the ways that individuals mobilize their responses. However, changes in the nature of perceptions of control and the ways in which the objective and perceived controllability shape coping responses across development is not known and is an important agenda for future research. (Compas, 2009, p. 96)

Fifty years of research have documented the crucial role played by control, both objective and subjective, when people are faced with challenges and difficulties (Bandura, 1997; Dweck, 1999; Folkman, 1984; Lefcourt, 1992; Peterson, Maier, & Seligman, 1993; Seligman, 1975; Skinner, 1995; Taylor & Stanton, 2007; Weiner, 1986). For example, degree of objective controllability is considered a defining characteristic of negative life events, with loss of control one of the few events that researchers acknowledge as universally stressful (Miller, 1979; Thompson, 1981). Even more extensively studied, however, is perceived or subjective control, one of the most powerful personal resources that can be called upon in dealing with obstacles or failures (Folkman, 1984; Taylor, 2007). Its salutary effects have been demonstrated across domains and age groups from earliest infancy (Watson, 1966) to oldest age.
Multiple programs of research have traced the many pathways by which a sense of control influences reactions to stress, including through physiology, behavior, emotions, energy, attention, motivation, volition, and cognition.

The vast majority of research has focused on individual differences, examining how people who experience differing levels of objective or perceived control behave differently during stressful encounters. This focus meshes well with the majority of research on coping, which also examines individual differences: how people who possess different levels of personal and social resources (e.g., perceived control or social support) show different kinds of coping, and how different kinds of coping contribute to aspects of individual physical, psychological, and social functioning (Aldwin, 2007; Compas et al., 2001; Folkman & Moskowitz, 2004). Many fewer studies have considered the development of either control or coping, at least partly because the work on individual differences seems so unequivocal: The benefits of perceived control when dealing with stress are found at all ages.

However, at a general level, researchers also agree that every aspect of how individuals detect and respond to stress is shaped by their developmental level (Aldwin, 2007; Compas, 1998; Garmezy & Rutter, 1983; Murphy & Morarity, 1976; Skinner & Zimmer-Gembeck, 2007). For example, infants, children, adolescents, adults, and the elderly differ in the kinds of encounters they experience as stressful, in the nature of their appraisals, in their repertoires of potential coping responses, and in the role played by social partners. All these processes should show age-graded shifts, at least up until early adulthood, and potentially across the lifespan (Aldwin, 2007). At the same time, however, researchers have noted the difficulty of realizing a developmental agenda for the study of coping (Compas, 1998, 2009; Coping Consortium, 1998, 2001; Fields & Prinz, 1997; Skinner & Edge, 1998; Skinner & Zimmer-Gembeck, 2007, 2009), precisely because coping reflects a higher-order construct, integrating work on a variety of processes involved in detecting and responding to challenges, threats, and losses.

The goal of this chapter is to use research on the development of perceived control to serve as a scaffold for work on the development of coping. Although most studies of control, like most studies of coping, have focused on individual differences, pockets of research have examined age-graded shifts in many of the processes used for perceiving and interpreting control experiences (e.g., Flammer, 1995; Gurin & Brim, 1984; Heckhausen, 1982, 1984; Skinner & Connell, 1986; Skinner, Zimmer-Gembeck, & Connell, 1998; Wang & Pomerantz, 2009; Weisz, 1980, 1986; Wigfield et al., 2006; Wigfield & Eccles, 2002). Taken together, they suggest fundamental and systematic shifts at many ages, for example, in the kinds of information used to infer control, in the strategies used to exert control, in the understanding of the causes of control (e.g., effort, task difficulty, luck, ability), and even in the nature of the self to which control is attributed (Flammer, 1995; Skinner, 1995; Weisz, 1986). Hence, a careful consideration of developmental shifts in control, which is a reliably robust contributor to coping, might help map out some key developmental landmarks in coping processes.

This chapter is organized in four sections. After providing an overview of current multi-level systems conceptualizations of coping and a brief summary of the nature and terminology of control, we use the research on the development of control to explore three issues: (1) how mastery-oriented and helpless ways of coping may change in their form across infancy, childhood, adolescence, adulthood, and old age; (2) how the development of perceived control may contribute to qualitative shifts in how coping is organized as people age; and (3) how coping may itself constitute a proximal process that shapes the development of perceived control. Running throughout the chapter is a strong emphasis on the role of social partners, relationships, and contexts in shaping both coping and perceived control.

Multi-level Systems Views of Coping

At the core of the study of coping are the ways that people actually react to and deal with real stressors in their daily lives. As a result, the building blocks of the area are “ways of coping,” including constructive responses, such as problem-solving, effort exertion, help-seeking, distraction, or accommodation, as well as maladaptive responses, such as helplessness, escape, opposition, social isolation, or rumination. A focus on actual stressful interactions means that the study of coping has the potential to add value to work on risk and resilience by investigating how overarching risk factors may (or may not) produce daily encounters with stress, and how individuals’ everyday dealings with stress may (or may not) contribute cumulatively to lasting resources and vulnerabilities (Coping Consortium, 1998, 2001). Moreover, because coping entails a repertoire of responses, its study has the potential to integrate research across a range of individual responses to
stressed, such as help-seeking or rumination, which
typically have been studied in relative isolation from

Although ways of coping are a defining feature of
research in this area, systems conceptualizations
point out that these ways, even though expressed by
individuals, are actually a function of the entire
transactional “coping system” in which the individ-
ual is embedded. A schematic of the coping system
can be seen in the middle portion of Figure 3.1.
This system includes many interacting components,
such as the nature of the stressor itself (e.g., its actual
severity and controllability), the context in which
the encounter takes place, the appraisal of what is at
stake, and the personal and social resources available
to the individual when dealing with the event
(Lazarus & Folkman, 1984). In addition, coping
episodes unfold over time, so previous encounters
and ongoing iterations influence how people deal
with both novel and recurrent stressors (Folkman &
Lazarus, 1985).

At the same time, as also depicted in Figure 3.1,
coping can be considered part of a multi-level
process that extends from conditions of risk and
resilience at the highest level to individual moment-
to-moment transactions with stressors at the lowest
level (Coping Consortium, 1998, 2001). As shown
in the top portion of Figure 3.1, coping can be
viewed as an adaptive process that potentially medi-
ates the effects of risk or adversity on the develop-
ment of competence. So within the larger frame of
work on risk and resilience, coping can be consid-
ered a “proximal process” or driver of development
under conditions of adversity (Bronfenbrenner &
Morris, 1998). At the same time, as shown in the
bottom portion of Figure 3.1, coping episodes can
be decomposed into individual stressful encounters
that take place in real time and are shaped by the
actions of particular social partners as well as by the
subsystems that give rise to specific individual reac-
tions, such as physiology, emotion, attention, cog-
nition, motivation, and behavior. At this level,
coping overlaps with work on regulation, especially
the study of regulation under stressful conditions
(Compas, 2009; Eisenberg, Fabes, & Guthrie,
1997; Eisenberg, Valiente, & Sulik, 2009; Skinner

Such a multi-level view has been used by theo-
rists to describe the place and purpose of research on
coping with respect to work on resilience (which
takes place at a higher level) and work on regulation
(which takes place at a lower level) (Skinner, 1999).
Researchers point out the requirements that such a
task places on conceptualizations of coping, but also
highlight the potential of coping to contribute to
the integration of a range of theories, methodolo-
gies, and findings relevant to understanding how
individual development is shaped by stress and
adversity, work that currently inhabits a variety of
niches distributed across all of psychology (Coping

Nature of Control and Control Constructs

In attempting to use research on the development
of control to inform work on coping, it is important
to be clear about the nature and functioning of
control. Because the area of control is so fertile, it
has supported research on a variety of constructs,
including locus of control (Lefcourt, 1992; Rotter,
1966; Strickland, 1989), expectancies of success
(Wigfield & Eccles, 2000), causal attributions
(Weiner, 2005), learned helplessness (Seligman,
1975), self-efficacy (Bandura, 1997), mastery (Dweck,
1999), and perceived competence (Harter, 2006).
(See Heckhausen, 1991; Strake, 2002; or Wigfield
et al., 2006, for more details.) On the one hand, the
simultaneous investigation of these overlapping
processes has produced a mature understanding of
the antecedents, consequences, and mechanisms of
control across multiple domains and age groups.
On the other hand, the profusion of constructs has
made it difficult to judge the validity of competing
claims or even to discern the boundaries of the field
of control itself (Skinner, 1996).

The nature of control

Although consensus is not complete, a generally
accepted assumption in the area is that the power of
control to organize human behavior is based on the
fact that all people (and many other species) come
with a fundamental psychological need to be effective in
their interactions with the environment (Connell &
Wellborn, 1990; Deci & Ryan, 1985; Elliot & Dweck,
2005; Elliot, McGregor, & Thrash, 2002; Harter,
Referred to as the need for effectance, competence, or
control, this idea was first articulated in the psycho-
logical literature in 1959 by Robert White, who
assembled a wide range of observations and research
suggesting humans possess an intrinsic desire to create
effects in the environment, apparent, for example, in
infants’ delight in making things rattle and fall. White’s
insight—that this motive offers an adaptive edge
because people are naturally motivated to discover
how the world works and how their actions can be
effective—has proven durable. Successive genera-

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of researchers have shown how species-wide human neurophysiology supports this motivation, providing energy and effort focused on producing desired and preventing undesired outcomes, and leading to joy upon creating effects and dejection at non-contingency and loss of control (e.g., Amat et al., 2007; Gunnar & Quevado, 2007; Watson & Ramey, 1972).

**Figure 3.1** A model of coping as a multi-level adaptive system operating (top) as an adaptive process across developmental time, (middle) as an episodic process across episodic time, and (bottom) as an interactional process across real time.

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**Terminology of control**

Hence, at the core of control is the experience of exerting effort that produces a desired outcome (Skinner, 1996). Also referred to as *generative transmission* or *personal force*, these *experiences of control* or *mastery* can be distinguished from objective and subjective control. *Objective control conditions* refer...
to the actual controllability of outcomes, usually depicted by the objective contingencies in the environment (the conditional probability of an outcome given action compared to the probability of an outcome given no action) and the actual competencies of the actor (Seligman, 1977). Careful experimental studies of objective non-contingency have been able to uncover the neurological and hormonal pathways by which it shapes stress responses, and have shown that its deleterious effects can be found across a range of mammalian species (Maier & Watkins, 2005).

Subjective control refers to perceived control or the actor’s estimations of the control available to him or her. Most theories in the area are focused on perceived control, and so their names refer to facets of subjective control: an overall sense of control (e.g., expectancies of success, control beliefs), beliefs about available contingencies (e.g., locus of control, causal attributions, learned helplessness, strategy beliefs), or beliefs about one’s access to effective means (e.g., self-efficacy, perceived competence, perceived ability, capacity beliefs). In discussions of whether more control is better, these different kinds of control are often confused. Mastery experiences have consistently been found to result in a range of physiological and psychological benefits. However, although objective control and subjective control usually produce positive effects, they do not always. For example, sometimes the availability of control can prove to be coercive—pressuring people to exert effort or to engage with stressors when they might prefer not to.

Individual Differences in Control and Coping

All three kinds of control, that is, objective, subjective, and experiences of control—shape coping (Folkman, 1984). Objective controllability is a defining feature of the stressors to which individuals are exposed (Seligman, 1975). When examining coping, researchers are usually careful to distinguish situations that are objectively uncontrollable from those that are open to influence (Compas et al., 1991).

Controllability matters, whether the event is relatively trivial and short-lived (e.g., going to the dentist or giving a report in front of the class) or more chronic and potentially life-changing (e.g., parents’ divorce or life-threatening illness). In fact, a key difference between stressors appraised as challenge, threat, or loss is the degree of controllability, with loss events by definition offering no possibility of reversing the outcome (Lazarus & Folkman, 1984).

Subjective control describes an important personal resource individuals draw upon in forming appraisals and planning actions (Dweck, 1999; Folkman, 1984). It is the conduit by which objective control conditions shape coping (Abramson, Seligman, & Teasdale, 1978). In contrast to objective and subjective control, experiences of control describe the coping process itself: Mastery refers to coping episodes in which problem-solving efforts are deployed, and in which, over time, desired outcomes are produced and undesired ones are prevented or terminated. In the same vein, helplessness describes coping experiences in which attempts to influence the outcome do not produce their desired effects.

Control and the dynamics of coping

The effects of control are apparent at every point in the coping process (Dweck, 1999; Folkman, 1984; Skinner, 1995; Wigfield et al., 2006). When events are objectively controllable or when individuals have high confidence and efficacy, they are more likely to expect to be effective in stressful situations and so to appraise negative events as challenges rather than threats. They approach tasks with concentration and vigor, break them into manageable sequential parts, and employ a variety of alternative strategies. They look for action opportunities as events unfold, and remain focused on problem solutions. They maintain access to their cognitive resources and so perform close to the ceiling of their capacity. They show flexible and creative problem-solving, and seek help when needed. Regulation is constructive—that is, focused on generating strategies and shaping actions to be effective. They collect information about potential contingencies, viewing even failed attempts as instructive. They show more planning and proactive coping, taking preemptive actions. This pattern of coping is likely to be successful in actually dealing with stressful situations, and even when problems are not immediately solvable, produces gains in knowledge and skills. Over time, these coping episodes augment actual competence and may even reduce the likelihood of subsequent encounters with stressful events, both of which in the long run bolster a sense of control (e.g., Schmitz & Skinner, 1993).

Processes of helplessness have also been studied in detail (Dweck, 1999; Peterson et al., 1993). People who are exposed to uncontrollable events, who feel incompetent, or who believe that events are contingent on unknown or uncontrollable causes (like powerful others, chance, luck, or fate) seem to
be debilitated by obstacles or failures. They are more upset and show greater involuntary stress reactions. They appraise events as more threatening and tend to procrastinate or give up quickly. They lose focus and concentration, becoming distracted by self-doubt, rumination about failure, and worries about lack of ability. These preoccupations rob them of their previous skills at hypothesis-testing and strategizing (Dweck, 1999), resulting in more rigid problem-solving, passivity, confusion, escape, or help avoidance. This pattern of coping is not effective in dealing with stressors or learning from mistakes, and interferes with the development of actual skills and competencies, even making future stressors more likely (Downey, Freitas, Michaelis, & Khouri, 1998). In the long run, such experiences cement pessimism and expectations of future helplessness (e.g., Nolen-Hoeksema, Girgus, & Seligman, 1986).

As can be seen, these dynamics are amplifying. Individuals who are initially high on perceived control, through the ways they engage with problems, become even more competent and efficacious, whereas individuals who initially doubt their capacity to influence events, through their ineffectual handling of challenges, become even less competent and more helpless. Such cycles, if they iterate over time, can magnify initial individual differences, making the rich richer and the poor even poorer, and transforming subjective control to objective control. Taken together with information about objective control conditions (actual stressors and difficulties) and social supports, these dynamics can provide one account of the development of individual differences in perceived control, competence, and patterns of coping with stress (Seligman, 1975; Skinner et al., 1998).

**Developmental Conceptualizations of Coping**

It has proven surprisingly difficult to move beyond research on individual differences in coping in order to focus on the study of its development. A developmental agenda calls for research that identifies age-graded shifts in how infants, children, youth, adults, and the elderly detect, appraise, and respond to actual stressful events in their everyday lives, and would depict the underlying developments responsible for these changes (Compas, 1998, 2009; Murphy & Moriarity, 1976; Skinner & Edge, 1998; Skinner & Zimmer-Gembeck, 2007). In making progress on this agenda, researchers have had to construct “developmentally friendly” conceptualizations that link coping to basic adaptive processes.

An important step in this regard has been consensus that coping can be considered “regulation under stress” (Compas et al., 2001; Eisenberg et al., 1997, 2009; Skinner & Zimmer-Gembeck, 2007). From this perspective, coping refers to how people mobilize, coordinate, manage, and direct their actions (including behavior, emotion, attention, cognition, and physiology) under conditions of challenge, threat, or loss. This definition establishes links between coping and the normative development of emotional, attentional, and behavioral regulation as well as the underlying constitutional and social factors that shape their development.

A second important step has been the use of overarching families to help organize the seemingly endless lists of ways of coping that have been studied to date (Skinner, Edge, Altman, & Sherwood, 2003). It has proven impossible to integrate studies of coping across (or even within) age groups because assessments utilize a wide variety of disparate and partially overlapping categories of coping (Compas et al., 2001; Zimmer-Gembeck & Skinner, 2009). Analyses of their multiple functions allow ways of coping to be classified into about a dozen families that serve three major adaptive functions (Table 3.1).

The major adaptive function of the ways of coping organized around control is to find actions that are effective in operating contingencies in the environment. The four families that serve this function are: (1) problem-solving, which allows people to generate and adjust their actions so that they are effective; (2) information-seeking, which allows people to discover new contingencies in the environment; (3) helplessness, which identifies the limits of effective action; and (4) escape, which is an extreme form of avoidance that allows people to leave, distance themselves from, or deny non-contingent environments.

Each of these families contains many ways of coping in addition to the one used as its label. For example, “problem-solving” includes all ways of coping that serve the function of adjusting actions to be more effective, such as effort exertion, persistence, instrumental action, strategizing, planning, active attempts, and so on. Likewise, “information-seeking” includes many ways of collecting knowledge about how to produce desired and prevent undesired events, including asking others, looking up information in reference sources, direct observation of others’ performances, reading, experimentation, and so on. These four families of coping have been the subject of intense scrutiny: Within research on coping, they are some of the most common ways...
Table 3.1  A hierarchical model of adaptive processes and families of coping

**Adaptive Process #1: Coordinate Actions and Contingencies in the Environment**

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<tr>
<td>Family Function in Adaptive Process</td>
<td>Adjust actions to be effective</td>
<td>Find additional contingencies</td>
<td>Find limits of actions</td>
<td>Escape non-contingent environments</td>
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<tr>
<td>Ways of Coping</td>
<td>Strategizing</td>
<td>Reading</td>
<td>Confusion</td>
<td>Behavioral avoidance</td>
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<td>Instrumental action</td>
<td>Observation</td>
<td>Cognitive interference</td>
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<td>Planning</td>
<td>Asking others</td>
<td>Cognitive exhaustion</td>
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<td>Mastery</td>
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<td>Passivity</td>
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<td>Wishful thinking</td>
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**Adaptive Process #2: Coordinate Reliance and Social Resources Available**

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<td>Family Function in Adaptive Process</td>
<td>Protect available social resources</td>
<td>Use available social resources</td>
<td>Find limits of resources</td>
<td>Withdraw from unsupportive contexts</td>
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<td>Ways of Coping</td>
<td>Emotion regulation</td>
<td>Contact-seeking</td>
<td>Maladaptive help-seeking</td>
<td>Social withdrawal</td>
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<td>Behavior regulation</td>
<td>Comfort-seeking</td>
<td>Complaining</td>
<td>Concealment</td>
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<td>Emotional expression</td>
<td>Instrumental aid</td>
<td>Whining</td>
<td>Avoiding others</td>
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<td>Emotion approach</td>
<td>Social referencing</td>
<td>Self-pity</td>
<td>Freeze</td>
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**Adaptive Process #3: Coordinate Preferences and Available Options**

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<td>Family Function in Adaptive Process</td>
<td>Flexibly adjust preferences to options</td>
<td>Find new options</td>
<td>Give up preferences</td>
<td>Remove constraints</td>
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<tr>
<td>Ways of Coping</td>
<td>Distraction</td>
<td>Bargaining</td>
<td>Ruminations</td>
<td>Other-blame</td>
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<td></td>
<td>Cognitive restructuring</td>
<td>Persuasion</td>
<td>Rigid perseverance</td>
<td>Projection</td>
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<td>Minimization</td>
<td>Priority-setting</td>
<td>Intrusive thoughts</td>
<td>Aggression</td>
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<td>Defiance</td>
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studied and some of the most common reactions to stress (Skinner et al., 2003). Within the area of control, they are the operational definitions of mastery and helplessness. These families represent complete overlap between the areas of coping and control and so are the primary ways of coping considered in this chapter.

**Perceived Control and the Development of Ways of Coping**

The first way that research on perceived control may be able to contribute to developmental studies of coping is to reveal how mastery-oriented and helpless ways of coping change in their form across infancy, childhood, adolescence, adulthood, and old age. The analysis of overarching functions of coping families marks the beginning of such a catalog. Functions can be used to identify corresponding lower-order ways of coping that, despite their apparent topological differences, are developmentally graded members of the same family. Functional analyses have been used in work on emotion and attachment to show that a variety of forms of action (such as crying, calling, and crawling to a caregiver) fall within the same category because they serve the same function (in this case, proximity-seeking) (Cassidy, 1994; Cassidy & Shaver, 1999). The identification of functionally analogous categories allows a phenomenon to be followed across developmental periods even if it changes its form. A consideration of the action outcomes of perceived control at successive ages may be helpful in identifying functionally analogous ways of coping for the families of problem-solving, information-seeking, helplessness, and escape.

**Perceived control and coping during infancy**

Newborns react to stressors based on their species’ general stress physiology and their temperamental characteristics (Derryberry et al., 2003; Gunnar & Quevado, 2007). Generally, infants come with the capacity to detect action-outcome contingencies and to respond to them with interest and energy (Papousek & Papousek, 1979; Watson, 1966). At the same time, there also seem to be inborn individual differences in sensitivity to contingencies, interest in creating effects, focus of attention, and intensity of emotional responsiveness to contingent stimulation. Studied individually as dimensions of temperament or collectively as mastery motivation (Morgan & Harmon, 1984), such differences have been documented in the first months of life (Rueda & Rothbart, 2009).

Critical to understanding perceived control in infancy is the recognition that the earliest experiences of control are created by caregivers when they show sensitive responsiveness to infants’ signals (Davidov & Grusec, 2006; Lamb & Easterbrooks, 1981; Landry, Smith, & Swank, 2006; Papousek & Papousek, 1980). Social partners can provide contingency long before infants have the motor coordination to create effects in the physical world.

Control experiences (and early coping) for infants consist of sending out distress signals, and gaining confidence that caregivers will soon respond with appropriate comforting actions. The same experiences that promote a sense of control also promote a secure attachment, and such attachments have been shown to buffer stress and shape the development of stress reactions, including physiological ones, starting at birth (Nachmias, Gunnar, Mangelsdorf, Parritz, & Buss, 1996).

The earliest forms of stress reactions are based on reflexes and temperament, but they are soon supplemented by action schemes, such as directing bids or shaping the distress signals sent to caregivers (Barrett & Campos, 1991; Kopp, 1989). If caregiver reactions are not forthcoming, efforts are normally intensified (Goldstein, Bornstein, & Schwade, 2009). In terms of creating contingencies in the physical world, early object play involves repetition and “practice” creating desired effects, such as shaking rattles or hitting dangling toys (Piaget, 1976).

Early forms of information-seeking may include social referencing, in which infants study their caregivers for signs communicating the severity and emotional significance of novel or stressful events (Diamond & Aspinwall, 2003; Hornik, Risenhoover, & Gunnar, 1987; Lewis & Ramsay, 1999; Sorce et al., 1985). Infants use this information to guide their actions, deciding, for example, whether to continue into a potentially dangerous situation or to scoot back to the caregiver. Other early forms of information-seeking may include object play, in which the various potentials of an object are explored, and “learning by doing,” in which infants successively try out multiple variants on an action, such as banging a spoon with varying amounts of force (Piaget, 1976).

The earliest forms of helplessness usually involve passivity in the face of objectively controllable events, and may also involve protest and other forms of emotional distress (Watson & Ramey, 1972). When infants are passive, they create fewer action-event contingencies. Moreover, learned helplessness implies that they also pay less attention to effects...
that are created, and so are less sensitive to detect-
ing existing contingencies. In terms of escape, its
prototypical expression involves leaving the stress-
ful situation, and so is most obvious after an
infant can locomote. Nevertheless, prior to inde-
pendent locomotion, infants can express the desire
to escape by reaching for the caregiver (Robinson &
Acevedo, 2001) or leaning/looking away from an
event (Gianino & Tronick, 1988). They may also
escape through gaze aversion, head turning, or sleep
(Kopp, 1989; Kopp & Neufeld, 2003; Mangelsdorf,
Shapiro, & Marzolf, 1995).

Perceived control and coping during preschool age
1 Ages 2 to 5 bring a major shift in children’s action
potential. For the first time, they become able to
intentionally direct their own behaviors, stopping
themselves from doing things they spontaneously
want to do and making themselves do things they
do not really want to (Kochanska, Coy, & Murray,
2005). This expands their repertoire of effective
actions and allows them to be more self-reliant in
producing desired effects. Temperament continues
to play a role, with children higher in emotional
reactivity less able to regulate and children higher
in effortful control more able to regulate their
behaviors of their own accord (Kochanska, Aksan,
& Carlson, 2005). Information-seeking can also
become more intentional. Preschool-age children
can pose explicit requests to adults and peers, asking
for information about what to do when faced with
obstacles and difficulties (Kerns et al., 2006).

Young children still rely on caregivers and adults
in stressful situations, but with enough support they
are often able to carry out effective actions on their
own (Bronson, 2000). At the same time, however, the
severity of the stressful event and the quality of adult
participation determine whether children will be
able to act effectively in a given situation (Kopp,
2009). Joint problem-solving with caring adults likely
represents the kind of coping episodes out of which a
repertoire of adaptive strategies, as well as confidence
and actual competence, emerges (Kopp, 2009).

At this age, helplessness and escape take on their
prototypical forms (Burhans & Dweck, 1995). Compa-
red to mastery-oriented children, young
children with low perceived control show less persis-
tence, focus, and concentration on difficult tasks,
and try out less sophisticated hypothesis-testing
strategies. In terms of escape, they stop working as
soon as possible and select easier future tasks.
Although there was initially some speculation that

young children might be less vulnerable to help-
lessness than older children, subsequent research
has demonstrated that preschool-age children, given
appropriate tasks and concrete evidence of failure,
show full-blown helplessness effects, including behav-
ioral, emotional, and self-derogatory components
(e.g., Boggiano et al., 1993).

It is important to note that the development of
coping strategies seems to be cumulative (Zimmer-
Gembeck & Skinner, 2009)—that is, there is no
evidence that, as new ways of coping emerge, old
strategies disappear. For example, as young children
become able to intentionally deploy actions and
explicitly request information, they nevertheless
continue to have access to action schema that served
them as infants, such as direct action, effort exer-
sion, expressions of distress, direct observation of
others, and social referencing. In this way, coping
repertoires are expanded and may become more
organized and integrated, although few studies of
coping have empirically examined this possibility

Perceived control and coping during childhood
A major shift taking place between ages 5 and 7 is
the development of problem-solving that is largely
cognitive in nature (Sameroff & Haith, 1996)—that
is, children are better able to imagine the effects of
different strategies, and then select the one they
think is most likely to be effective, without needing
to actually try them out on the plane of action
(Piaget, 1976). This expands coping possibilities,
saving children a great deal of time and energy, by
bringing strategies forward from previous episodes
and by avoiding potential failures and negative
social reactions. Children are also increasingly
able to use cognitive means of information-seeking,
for example reading, even though social means of
information-seeking are still preferred, including
going to adults for advice and, for specific issues,
turning to peers (Zimmer-Gembeck & Skinner,

The use of cognition to organize coping responses
opens the way for adaptive strategies, but it can
also play a role in the creation of helplessness.
During middle childhood, children’s cognitive
expectancies become important and stubborn driv-
ers of action (Dweck, 1999). If children believe they
have little or no control (Carpenter, 1992) or are
given less objective control over a stressor (Manne
et al., 1992), they manage stressful events less com-
petently (see Miller et al., 1999, for a review). As a

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result, children’s cognitions interfere with the production of evidence that would disconfirm their expectations of helplessness. Escape can also take cognitive forms. In addition to physically escaping situations in which they do not expect to succeed, children increasingly escape via cognitive means, such as daydreaming or withdrawal of mental effort (Zimmer-Gembeck & Skinner, 2009). These forms of escape may be less disruptive than physical attempts to leave (in the classroom, for example), but they are also harder to detect, which means that they can impede teachers’ and other adults’ attempts to remedy them.

**Perceived control and coping during adolescence**

A major shift during adolescence is the potential for youth to use meta-cognitive strategies when dealing with challenges and failures (Kuhn & Franklin, 2006; see Compas et al., 2001, for a review). Meta-cognition, or the capacity to reflect on one’s own cognitive processes, emotions, and actions, provides at least two advantages to coping. First, it allows a teenager to use information about the long-term effects of a course of action in making local decisions about which strategy to use in solving a problem. The capacity to imagine future emotional and social consequences of an action extends the potential effectiveness of coping beyond the current episode (Aspinwall & Taylor, 1997). Second, meta-cognition allows adolescents to coordinate multiple perspectives and alternative pathways in deciding how to deal with a challenge or setback. They can comfort themselves using largely cognitive meanings—such as telling themselves that a depressed mood is only temporary—and can coordinate their own wishes and desires with those of others in their problem-solving (e.g., Band & Weisz, 1990).

Although representations of attachment figures play a role in stress reactions beginning in infancy (Lewis & Ramsay, 1999; Nachmias et al., 1996; Urban, Carlson, Egeland, & Sroufe, 1991), adolescents have the potential to construct even more advanced and coherent representations of others as available and secure sources of comfort and aid. Hence, adolescents’ cognitive representations can serve as stronger and more durable sources of support when others are not physically present, alleviating distress and allowing adolescents to better focus their coping actions (Seiffge-Krenke, 2004; Shaver, Belsky, & Brennan, 2000).

Consistent with growth in meta-cognitive strategies, adolescents experience other cognitive advances that expand their capacity to manage daily stressors and major life events. These include abstract rather than concrete representations, improvements in working memory capacity, the ability to engage in multidimensional thinking, and a greater capacity for self-reflection (Keating, 1999). Moreover, based on practical experiences, adolescents also gain knowledge in a range of content areas, including knowledge about stressful events, controllability, and coping, which assists them to automatize their responses or to more easily recognize the most salient cues and draw upon their knowledge of relevant and useful responses. By having the background knowledge and the capacity to think about multiple dimensions and self-reflect, adolescents often show signs of broader conceptual reorganizations (Case, 1985; Case, Hayward, Lewis, & Hurst, 1988), and they are more likely to use their new abilities to adopt the perspectives of others, to negotiate and accommodate, and to consider multiple solutions to their problems (Seiffge-Krenke, 2004).

The use of meta-cognitive strategies and other advances in thinking can have drawbacks, too. The same skills that permit adolescents to imagine long-term consequences and think about multiple aspects of phenomena also permit them to worry about the future and imagine negative outcomes and failures. They are more likely than children to ruminate and worry excessively (Zimmer-Gembeck & Skinner, 2008). The inferential power of adolescents also allows them to become stuck within a mindset of helplessness (Dweck, 2002). Once an adolescent views himself or herself as incompetent, even multiple experiences of success can be discounted using inferential tactics—deciding that high performance is due to luck, easy tasks, or the favor of powerful others. The capacity to take multiple perspectives can also be deployed to evade detection when escaping, whether that be via actual physical escape (like skipping school) or procrastination (like delaying household chores). Adolescents also have greater access to and participate in some potentially detrimental escape coping behaviors, such as binge drinking, other drug use, or risky sexual behavior, and they report that they do so in order to cope with stress (Frydenberg & Lewis, 2000).

**Perceived control and coping during adulthood**

Compared with childhood and adolescence, age-graded shifts in the means of exerting control are not as well documented during adulthood (Baltes & Baltes, 1986; Lachman & Prenda-Firth, 2004;
Infants learn in the first days of life whether their expressed desires create changes in the world. This discovery, the origins of a sense of control, can provide motivation for efforts to deploy increasingly more differentiated and appropriate signals when distressed (Holodynski & Friedlmeyer, 2006). Such experiences actually reduce reactivity in stress physiology and prepare the infant to be more curious and active in subsequent interactions with the social and physical world.

Consistent with research on regulation, research on control suggests that general mechanisms of coping accumulate developmentally, for example, adding regulation via action schemes during infancy, supplemented by coping through direct action during preschool age, coping using cognitive means during middle childhood, and coping using meta-cognitive means during adolescence (Table 3.2; Skinner & Zimmer-Gembeck, 2007). Perhaps these means of coping continue to be integrated and elaborated during adulthood, becoming more selective and flexible, at the same time that the development of domain-specific expertise enriches coping capacity in selected areas. The entire repertoire will be needed to deal adaptively with the normative challenges of aging (Aldwin, 2007).

These developmental phases are accompanied by different kinds of participation by social partners. During infancy, caregivers carry out coping actions based on the expressed intentions of their infants. During toddlerhood and preschool age, children directly enlist the participation of social partners. During middle childhood, children are increasingly able to coordinate their coping efforts with those of others, consulting both peers and adults. By adolescence, social partners are a backup system, with much of their functioning expressed through the internalization of values and guides by the adolescent. During adulthood, individuals create their own dyadic and family-level coping systems to which they contribute and that shape their own stress reactions and coping (Berg et al., 1998). During later life, the loss of social partners and roles requires significant adjustment to maintain high-quality coping, and constructive help from social partners (e.g., an aging spouse, siblings, or adult children) is an important interpersonal resource for coping (Aldwin et al., 2009; Zarit et al., 2003). Throughout the lifespan, reliance on others when dealing with stressful life events is both normative and adaptive (Newman, 2000). In fact, learning to “cope well with others” is an important developmental task at every age (Berg et al., 1998).

**Summary of developmentally graded ways of coping organized around control**

Development decisively constrains the expression of the four families of coping organized around adjusting actions to be effective in producing desired outcomes. The limited repertoire of infants involves reflexes, temperamental preferences, and action schema. However, if infants have responsive caregivers, their joint coping repertoire is expanded greatly.

Wolinsky et al., 2003; Zarit, Pearlin, & Schaie, 2003). However, it is assumed that as adults develop domain-specific expertise, they will be more effective in problem-solving and strategizing. One possible new skill is the capacity to integrate and prioritize competing demands (Deci & Ryan, 1985).

This would allow people to recognize situations in which different facets of themselves are pulling for different strategies, and to use their genuine priorities to sort out the right course of action for themselves to use in dealing with challenges or failures. This might help explain individuals’ increasing capacity to decline to employ the most effective strategy for producing a given outcome, if the strategy has negative side effects, for example, if it violates their own moral code or inflicts harm on someone else (Deci & Ryan, 1985, 2000).

During adulthood and old age, changes in how control is exerted seem to be less a function of age and more a function of social structure and the nature of events that are encountered (Aldwin, Sutron, Chiara, & Spiro, 1996; Heckhausen & Schulz, 1998; Zarit et al., 2003). So, for example, social and biological timelines seem to shape individuals’ control efforts, with increased activity immediately prior to a developmental deadline (such as childbirth age) and activities focused on devaluing the outcome once the deadline has passed (Schulz, Wrosch, & Heckhausen, 2003).

Despite researchers’ assumptions that biological and cognitive declines in old age should result in more helplessness and maladaptive coping, empirical evidence contradicts this idea, leading researchers to focus on the capacities of the elderly to deal with objective losses without falling into helplessness (Aldwin, 2007). Moreover, although so far no evidence suggests that it is age-graded, the emergence of wisdom and spiritual developments during adulthood and old age would be likely to reorganize people’s coping strategies (Baltes & Staudinger, 1995), including problem-solving and information-seeking, as well as potentially reducing helplessness and the desire for escape.
Table 3.2  Broad outlines of possible developmental shifts in means of coping

<table>
<thead>
<tr>
<th>Developmental Period</th>
<th>Approximate Ages</th>
<th>Nature of Coping</th>
<th>Role of Social Partners</th>
<th>Nature of Regulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infancy</td>
<td>Birth to 18 months</td>
<td>From reflexes to coordinated action schema</td>
<td>Carry out coping actions based on infant’s expressed intentions</td>
<td>Interpersonal co-regulation</td>
</tr>
<tr>
<td>Preschool age</td>
<td>Ages 2 to 5</td>
<td>Coping using voluntary direct actions</td>
<td>Available for direct help and participation</td>
<td>Intrapersonal self-regulation</td>
</tr>
<tr>
<td>Middle childhood</td>
<td>Ages 6 to 8</td>
<td>Coping using cognitive means</td>
<td>Cooperate with and support child’s coping efforts</td>
<td>Coordinated self-regulation</td>
</tr>
<tr>
<td>Early adolescence</td>
<td>Ages 10 to 12</td>
<td>Coping using meta-cognitive means</td>
<td>Reminder coping</td>
<td>Proactive self-regulation</td>
</tr>
<tr>
<td>Middle adolescence</td>
<td>Ages 14 to 16</td>
<td>Coping based on personal values</td>
<td>Backup coping</td>
<td>Identified self-regulation</td>
</tr>
<tr>
<td>Late adolescence</td>
<td>Ages 18 to 22</td>
<td>Coping based on long-term goals</td>
<td>Monitoring coping</td>
<td>Integrated self-regulation</td>
</tr>
</tbody>
</table>

Development of Perceived Control and Age-Graded Shifts in Coping
The second way that work on perceived control may be able guide the developmental study of coping is to use research on age changes in the processes of perceiving and interpreting control experiences to identity developmental periods marked by qualitative changes, and to explore whether they correspond to landmark shifts in processes of coping. In examining the development of perceived control, researchers find it useful to organize the variety of constructs populating the area according to the functions they serve in an action sequence, such as a coping transaction (Heckhausen, 1991; Skinner, 1995). Beliefs that come into play prior to the initiation of action can be thought of as regulatory beliefs; beliefs that make sense of action sequences after they have occurred can be referred to as interpretive beliefs. Regulatory beliefs launch and guide coping; they shape whether and how people approach and engage in a stressful transaction. The beliefs that regulate action are control beliefs or the sense that “I can do it.” Variably labeled as perceived control, sense of control, expectancies of success, and self-efficacy, these constructs refer to generalized expectations that the self can produce desired and prevent undesired outcomes.

After performance outcomes, individuals employ interpretative beliefs to translate the causal meaning of the action episode. These include people’s explanations about the likely causes of desired and undesired events (also called strategy beliefs), as well as people’s explanations about their own role in producing success or failure (also known as capacity beliefs). Strategy beliefs refer to generalized expectancies about the effectiveness of certain causes (such as effort, ability, powerful others, luck, and unknown); they are similar to locus of control, causal attributions, explanatory style, or response-outcome expectancies. Capacity beliefs refer to generalized expectations about the extent to which the self possesses or has access to potentially effective causes; they are similar to self-efficacy, perceived competence, or perceived ability (Connell, 1985; Skinner, 1995, 1996; Weisz, 1986). Both strategy and capacity beliefs are important in interpreting the meaning of a causal episode. For example, individuals may believe that effort is a good strategy for success, but doubt that they have the personal capacity to exert effort. Unknown strategy beliefs, or the conviction that one has no idea how to succeed, are some of the most pernicious and maladaptive beliefs people can hold and, developmentally, some of the earliest predictors of helplessness (Connell, 1985).

Profiles of control
Patterns of perceived control can be identified that are powerful predictors of motivation, performance, and coping. Optimal profiles include high control expectancies, high beliefs in effort as a strategy, and high confidence in one’s own capacities, combined with low dependence on uncontrollable strategies.
(such as ability, powerful others, luck, and unknown).
In contrast, the most maladaptive profile incorporates
a low generalized sense of control, low beliefs in effort as an effective strategy, and low confidence in one’s own capacities, combined with high reliance on uncontrollable strategies. Aggregate scores created to reflect these profiles in the academic domain are strong predictors of engagement, achievement, and eventually retention or dropout, all the way from elementary to high school (e.g., Connell et al., 1994, 1996; Skinner et al., 1998).

**Developmental course of perceived control**
Distinguishing among these different kinds of beliefs has been important for research on development because different aspects of perceived control show different patterns of age-graded change (Skinner et al., 1988). In general, young children’s beliefs start out optimistic, undifferentiated, and unrealistic, in that their outcome expectations are much higher than their actual levels of performance would warrant (Stipek et al., 1992). It is as if young children have an amalgamated sense of personal force, which incorporates not only actual effectiveness but also the intensity of their wishes and desires. At the most general level, normative development involves successively differentiating other important causes from this amalgam, coming to recognize, for example, the roles played by other people, task difficulty, luck, and ability (Weisz, 1980, 1981, 1986).
Children become more effective agents as they increasingly understand how outcomes are shaped by the interplay among multiple necessary and sufficient causes. In this sense, normative change is a series of developments leading toward more realistic and complex causal schema as children grow older (Sedlak & Kurtz, 1981; Weisz, 1983, 1984).
At the same time, however, an increasingly realistic understanding of how to exert control comes with a potential downside. As children become more clear about the important role played by causes other than personal force, their sense of their own competence (which relies on the strength of personal force) is naturally diminished. This general pattern can be discerned in research on the development of children’s causal conceptions and perceived competence in the academic domain (Skinner et al., 1998; Weisz, 1986). As causal schema develop that allow children to successively differentiate conceptions of effort from the contributions of other people, from their own desires and wishes, from task difficulty, from luck, and from ability, a steady decline in children’s sense of their own competence can be detected (Stipek & Daniels, 1988), accompanied by evidence that these perceptions come to be calibrated to their actual levels of performance (e.g., Stipek, 1984).

In integrating work on development with research on individual differences, the key question for control theorists becomes: How can children’s generalized sense of control, which ideally would remain strong, weather the successive developments needed to produce a more realistic understanding of the complexity (and potential uncontrollability) of causes? In other words, how can children construct a successively more complex and veridical picture of causal phenomena without exerting so much downward pressure on their control expectancies that it undermines their motivation, engagement, and coping? We consider these questions briefly for three well-documented developmental shifts that take place during early childhood, middle childhood, and early adolescence. We also speculate about some less well-studied shifts during adulthood and aging. In keeping with a multi-level developmental framework, the answers to these questions include a consideration of what the individual brings from previous developmental periods, as well as the nature of the current shift (typically based on underlying cognitive developments), and the demands and supports provided by social partners in the current context.

**Differentiating self and other as causes of outcomes**
Sometime during the second year, children come to appreciate the difference between the actions of the self and those of other people as causal factors in producing task outcomes (Heckhausen, 1982, 1984). In the parlance of control, conceptions of personal force no longer include concrete instrumental help from others. Hence, to feel efficacious, a toddler needs to “Do it myself!” (Geppter & Kuster, 1983). This development may be one factor underlying the emergence of the desire for autonomous action, which is a marked characteristic of 2-year-olds (Heckhausen, 1988). In terms of coping, such a development suggests that caregivers may need to take a step back from directly carrying out coping actions for children or risk undermining their sense of control. However, despite the fact that it reflects a cognitive advance and may contribute to gains in self-reliance, the loss of direct physical assistance from caregivers seriously limits what children are able to achieve, and so creates its own corresponding risk of helplessness.
To negotiate this transition in ways that support independence and still preserve a sense of efficacy, caregivers are required to show careful developmental attunement during coping episodes (Kliewer, Sandler, & Wolchik, 1994). Caregivers can gently move to more distal forms of support, scaffolding toddlers’ performance with suggestions, ideas, and encouragement. Patience is also required, as children’s initial struggles take longer than caregivers’ solutions, and children’s frustration and discouragement may be difficult for caregivers to tolerate. In a sense, caregivers now move to standby alert, so they are available if children ask for direct help, to respond with a teaching attitude, suggesting to the child “I’ll show you how, so you can do it yourself.”

The transition in modes of coping is smoother if, prior to toddlers’ demands for independence, caregivers have a history of actively promoting children’s skill acquisition and independent coping. This increases the likelihood that toddlers have more actual competence at their disposal when attempting to be self-reliant. Moreover, the handoff to more independent coping is facilitated by a secure attachment, based on a previous history of sensitive cooperation between caregiver and child. This results in more flexibility on the child’s part in relying on and welcoming appropriate forms of participation from caregivers. It also supports the development of a child’s sense that he or she has access to powerful others during coping episodes. In contrast, when caregivers are intrusive and continue to insert themselves into children’s coping episodes when help is not needed or over children’s protests, children can become helpless, passive, resistant, or angry (Pomeranz & Eaton, 2000, 2001). In a similar vein, when children try to cope by themselves with events that overwhelm them, such as often occurs with neglectful parenting, children can become discouraged, confused, or anxious. Both intrusive and neglectful parenting undermine the development of self-reliant strategies for dealing with challenges and threats, as well as interfering with a sense of control (Flammer, 1995; Skinner, 1995).

No wonder this transition can feel like a balancing act, in which caregivers are continually gauging whether children are competent enough to handle certain tasks on their own and how to provide the minimum support necessary to allow toddlers to eventually achieve success through their own sustained efforts (Heckhausen, 1988; Skinner & Edge, 1998). Ensuring that the challenges toddlers face are developmentally appropriate, in turn, depends not only on whether caregivers can show the kind of authoritative parenting that sets firm limits on the everyday tasks toddlers are allowed to tackle, but also on whether caregivers have the higher-order resources they need to keep overwhelming stressors out of their children’s lives (Tolan & Grant, 2009).

Throughout coping episodes, of critical importance are the explanations that caregivers offer children for their successes and failures (Dweck & Molden, 2005). The most beneficent attributions are ones that direct children’s causal interpretations toward their efforts and strategies, and away from their permanent characteristics and abilities. Perhaps surprisingly, even praise for positive traits, such as goodness and smartness, focuses children’s attention on the causal force of immutable entities, which are by definition uncontrollable (Kamins & Dweck, 1999). Of course, when children do not succeed and adult help is needed, caregivers can assure children that they will be successful at more difficult tasks by themselves when they are older and have more practice.

**Social comparison, perceived control, and coping**

Starting in about fifth grade, children become more interested and able to use the performances of peers as a standard against which to measure their own levels of performance (Ruble, 1983). This new skill reflects a gain in the accuracy of control beliefs in that normative performance information allows children to distinguish task difficulty (when everyone performs poorly) as a cause of performance outcomes. It also allows children to recognize when it is something about their own action that is contributing to performance, namely, when their own level of performance differs from the norm (i.e., when they perform better or worse than everyone else) (Weiner, 1986). Social comparison can be seen in many domains in middle childhood, but it is most obvious in areas that are highly valued by the social context, and in which outcomes are directly compared and evaluated, such as in school, sports, physical appearance, and popularity.

Social comparison can serve useful purposes when coping. An accurate estimate of difficulty can be used to gather the resources and allow the time needed to be effective. If one is performing poorly on tasks while others are succeeding, it can also be interpreted as information that one needs to apply more effort or try different strategies. In fact, downward social comparison seems to be an important mechanism for dealing with losses during old age.
when the elderly compare their well-being and
to note that they themselves are better off in compar-
son (e.g., Heckhausen & Krueger, 1993).

However, despite the fact that better estimates of
task difficulty represent a cognitive advance, they
do not also increase a potential vulnerability to coping and a
sense of control. When dealing with difficulties and
setbacks, they can add the burden of self-evaluation.
of “looking over one’s shoulder” at how everyone
else is doing. For children who are lagging behind
their age-mates, it is easy to become discouraged
and to denigrate their own potential. Such a mind-
s set adds stress to already demanding situations and
subtracts resources that could be used for coping.
It can even be a basis for devaluing whole areas of
activity, namely, those in which one is behind or in
which one needs to exert much more effort com-
pared to others. It is a sad irony that such decisions
can steer children away from precisely those activi-
ties where more experience and practice could lead
to improvement.

This transition is easier for children who have
developed adequate levels of social, academic, and
physical competence before social comparison comes
online. Social partners, both adults and peers, can
also ease the transition if they encourage children to
use normative comparisons as information about
task difficulty and effort, but not about capacity
(Dweck, 1999). At the level above individual part-
ers, social contexts communicate key messages
about the centrality and meaning of performance
comparisons (Elliot, 1999). For example, work on
achievement goals shows that explicit rankings and
competition, which characterize many schools,
sports teams, and peer groups, exacerbate the poten-
tial negative impact of social comparison, leading
children to focus on their relatively stable attributes
as causes of performance and to avoid participation
in areas where their rankings are low (Anderman
et al., 2002).

In contrast, social groups or classrooms with a
“learning” orientation lead children to concentrate
on effort and improvement, emphasizing intra-indi-
vidual comparisons in which children track their
own past performance to mark progress. Participation
in activities in which sustained practice results in
obvious improvements, such as sports or the cre-
ative arts, is a concrete operational way to demon-
strate to children that sustained effort has the power
to lift their level of performance. Of course, high-
quality teaching or tutoring (which transmits effec-
tive strategies) as well as consistent practice are
necessary if children’s efforts are to be effective in
boosting their performance outcomes.

**Conceptions of ability, perceived control, and coping**

In late middle childhood or early adolescence
(between the ages of 10 and 12), children come to
understand the cognitively complex notion of ability
(Nicholls, 1978). “Ability” is an inferential concept;
it represents an invisible capacity that can only be
inferred from a pattern of performance outcomes:
success on normatively hard tasks with little effort.
To make such inferences, children must be cogni-
tively capable of understanding inverse compensa-
tory relations between effort and ability (Miller,
1985; Nicholls, 1984). This means children under-
stand that to produce the same outcome, smart
children do not need to try as hard. With this cogni-
tive advance, however, comes the vulnerability
described as “the double-edged sword of effort”
(Covington & Omelich, 1979), in which children
come to see that high exertion that ends in failure
can imply low ability, thus making all-out effort a
potentially risky proposition. At this age, the aspects
of perceived control that best predict engagement
(and that are best predicted by performance) change
from those focused on the capacity to exert effort to
those focused on one’s own level of ability (Skinner
et al., 1998).

In early studies of the development of learned
helplessness, researchers hypothesized that young
children, because they did not have the cognitive
ability to infer ability, would be shielded from the
effects of non-contingency, and that all children,
once they acquired “mature” conceptions of ability
during early adolescence, would be more vulnerable
to helplessness. However, both these hypotheses
turned out to be incorrect. For younger children,
research shows that there is no age at which they are
free from the effects of repeated failure (Burhans &
Dweck, 1995). Instead, the experiences that pro-
duce helplessness are different for younger children.

In early elementary school, more concrete tasks and
more directly observable outcomes exacerbate the
effects of repeated failure (e.g., Boggiano et al.,
1993). Moreover, although young children are
not able to make complex inferences about the rela-
tions of patterns of outcomes to levels of ability,
they can construct conceptions of their traits (e.g.,
goodness and badness) as fixed and immutable
(Dweck, 1999). These are the experiences and belief
systems that make young children more vulnerable
to helplessness.
For older children and young adolescents, it turns out that the effects of cognitive advances on control and coping depend completely on the social context, both local and cultural. When children acquire the cognitive capacity to understand inverse compensatory relations among causes, they will apply these schema to effort and ability only in cultures (such as the United States) that endorse conceptions of ability as a fixed entity that can be diagnosed from levels of performance (Nicholls, 1984; Rosenholtz & Simpson, 1984). Moreover, these cultural conceptions must be communicated to children, for example, by teachers who respond to children’s failures by doubting their capacities (Graham, 1990). Finally, these messages must be internalized by children, so that they are convinced that their own ability is a fixed immutable entity that is demonstrated by every performance (Dweck, 1999). In contrast, if children operate in classrooms and cultures that allow them to continue to see ability or competence as a flexible, incremental attribute, open to cultivation through effort and practice, young adolescents (despite cognitive advances) will maintain a high sense of control and high levels of effort and engagement in the face of obstacles and setbacks (Mueller & Dweck, 1998).

**Adulthood and aging**

Work during adulthood and old age has not been able to identify specific age-graded changes in perceived control (Aldwin, 2007; Baltes & Baltes, 1986; Lachman & Prenda-Firth, 2004; Wolinsky et., 2003; Zarit, Pearlin, & Schaie, 2003). However, lifespan theories have suggested that a general shift from primary to secondary control takes place across later life (Heckhausen & Schulz, 1995). In this context, primary control refers to reliance on prototypical control strategies, such as effort and instrumental action, aimed at bringing the external world in line with one’s own preferences, whereas secondary control refers to effort that “targets the self and attempts to achieve changes directly within the individual” (1995, p. 285).

The basic idea is that, due to societal constraints and biological declines, people are not as able to exercise primary control as they age, so they come to rely more and more on secondary control. Two main kinds of secondary control can be distinguished. The first refers to secondary control as a backup system: After initial attempts have failed, people can shift resources from other endeavors to the implementation of the blocked goal (Thompson et al., 1998). This kind of control, sometimes referred to as compensatory secondary control, includes processes like increased efforts or the construction of new strategies. Especially important during aging, secondary control increasingly involves having access to the resources of others (such as doctors or one’s adult children) through “proxy” control (Bandura, 1997; Brandstätter & Renner, 1990; Heckhausen & Schulz, 1995).

The second kind of secondary control refers to a hierarchy of outcomes. From this perspective, when it is no longer possible to “fix” the primary outcome of choice, people can shift their focus toward “secondary” targets that are more amenable to control. For example, in the face of a chronic medical condition, elderly people can shift their focus from finding a cure to having an impact on the daily symptoms or treatment of the condition, and minimizing its effects on others (Thompson et al., 1993). This kind of secondary control can also include attempts to influence one’s own internal states (such as emotional reactions or attitudes) (Heckhausen & Schulz, 1995); these are also studied as emotion regulation (Gross, 1998).

Many of these “secondary control strategies” have already been studied in research on coping, which is the more common term used to describe how people deal with losses, failures, and difficulties that threaten control (Folkman, 1984; Lockenhoff & Carstensen, 2003). Both coping and secondary control can serve to create control experiences even in “low control” circumstances (Thompson et al., 1993). In fact, people’s ingenuity in finding secondary outcomes they can influence, even in “uncontrollable circumstances,” has compelled researchers to rename such real-life situations as “low control” circumstances. Outside of the laboratory, researchers have not been able to identify any situations in which people cannot find something of value to influence. Hence, it is possible that these ways of coping, or secondary control strategies, are elaborated and consolidated as people age, perhaps resulting in increased confidence in one’s capacity to enact them (also called coping self-efficacy), despite normative declines in primary control.

**Coping as a Process that Shapes the Development of Perceived Control and Competence**

The third and final goal of this chapter is to highlight the reciprocal dynamics that exist between control and coping. If coping describes how people
deal with ongoing challenges, difficulties, and failures, then it becomes clear that coping transactions are an important form of control experiences. That is, the ways in which people actually approach and engage with real-life stressors, how they cope, is the grist from which perceptions of control are shaped. All of the basic elements of the coping process can be found in theories about the construction of control, namely, the actual stressor and its objective controllability, the individual’s personal resources (including previous perceived control and actual competence), and the participation of social contexts (e.g., the availability and responsiveness of social partners). Hence, one important resource that can be influenced by coping is an individual’s sense of control, with adaptive coping promoting confidence, perceived competence, and a focus on mastery, and maladaptive coping contributing to helplessness.

**Failure experiences and perceived control**

One situation in which coping can have a decisive effect on a sense of control is when individuals are dealing with objectively uncontrollable events and losses. As mentioned previously, the notion of secondary control has been useful in understanding how people can deal adaptively with situations where primary control is not working, and has helped explain how people, when they do succumb to experiences of non-contingency and loss, can navigate their way back from helplessness. Control-related conceptions of secondary control focus on strategies that increase effort and concentration, access supplementary social resources, and locate sub-goals where control can be effectively enacted. These coping strategies create a feedback loop back toward a sense of renewed efficacy and control.

Equally important in dealing with uncontrollable events and failures are coping *appraisals*. Decades of research on causal attributions and explanations have demonstrated that, although unsuccessful attempts to produce a desired or prevent an undesired outcome are a risk factor for becoming helpless, it is the *interpretation* of the experience that mediates its effects on subsequent control expectations (e.g., Abramson et al., 1978; Weiner, 2005).

Work on control paints a clear picture of the kinds of appraisals that support adaptation in the face of failures, as well as the important roles played by social partners in shaping those appraisals. Although some theories emphasize the importance of attributions of failure to unstable and controllable causes (most notably lack of effort), the overarching mindset that seems to promote a sense of control is the conviction that all transactions contain important information about how to produce outcomes, that is, how to exert control. Failures and mistakes can be “our friends” in that they tell us what isn’t working “yet.” They can imply that more effort, time, or concentration is needed, that different actions or better strategies are required, and that the task is harder than expected (Dweck, 1999). Interestingly enough, such a mindset even allows people to discover more quickly that tasks are objectively unsolvable and so to stop working on them sooner (Janoff-Bulman & Brickman, 1982).

It turns out that social factors are critical to the development of this mindset. Parents, teachers, and friends who view mistakes and “failures,” not as embarrassing and shameful events to be hidden, but as fascinating learning opportunities will invite children to see them the same way (Dweck & Molden, 2005). Although studied most often during childhood and in the academic domain, there is no reason to think that the same principles would not apply at other points in the lifespan and in other arenas. For example, during old age, when elderly people make mistakes or can no longer perform at previous levels, it is easy for them and their social partners to see these “failures” as signs of irreversible losses of aging. Alternatively, they can be viewed as temporary setbacks that can be worked around or compensated for by various coping strategies, such as increased practice, external aids, or social support. This mindset facilitates the types of coping that maintain a sense of control late into old age.

**Beyond control in processes of coping and resilience**

At the same time, the picture painted in the control area is incomplete. Recovery from setbacks, losses, and helplessness can be conceived more broadly as issues of resilience, and there can be no question that true resilience relies on other adaptive processes in addition to control (Brandstätter & Rothermund, 2002). The analyses of coping families can immediately suggest two additional fundamental processes by which coping contributes to resilience: one organized around *relatedness* and one around *autonomy* (Baumeister & Leary, 1995; Connell & Wellborn, 1989; Deci & Ryan, 1985; Skinner & Wellborn, 1994). The primary ways of coping that follow from relatedness are part of the family of *seeking social support* (see Table 3.1).

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Support-seeking seems to be a general all-purpose strategy that is extremely common at every age (Skinner et al., 2003; Zimmer-Gembeck & Skinner, 2009). It can include contacts that directly support control—for example, asking for advice about effective strategies or requesting direct help. However, support-seeking adds value to resilience beyond its instrumental potential. Processes of relatedness can add perspective to issues of control (e.g., “I love you whether or not you get that outcome”), failure (e.g., “You did everything you could”), and disappointment (“Well, we still have each other, so it’s really not so bad”). And when it really is so bad, such as dealing with the death of a loved one, the presence and support of caring others can provide comfort, distraction, and healing, even when there is nothing to be done (Stroebe et al., 1996).

The adaptive function of autonomy is to coordinate preferences with available options, and the adaptive families of coping organized around autonomy are negotiation and accommodation (see Table 3.1). Negotiation, of course, refers to attempts to locate or create desirable options, and so clears the way for control efforts aimed at securing those options. However, in the control area, much more interest has been focused on processes of accommodation, which allow people to actually adjust their preferences to fit within existing constraints (Brandstätter & Renner, 1990). Once considered part of secondary control, researchers now view it as a distinguishable set of processes that involve fit, “going with the flow,” willing acceptance, acquiescence, adjustment, and “getting into it” (Morling & Evered, 2006, 2007; Rothbaum et al., 1983; Skinner, 2007). As opposed to control-related processes of secondary control, which involve adding instrumental resources or changing the self to be more effective, accommodation has nothing to do with control: it is about letting go of desired outcomes and previously held goals (Brandstätter & Rothermund, 2002; Skinner, 2007). Researchers emphasize that accommodation can be adaptive when primary control is not available. However, it can also be used as a first line of defense, with primary control engaged only if accommodation proves impossible. In many cases, accommodation can replace primary control all together from the outset, for example, in situations where people feel that pursuing control (even successfully) would use too many resources, upset relationships, or interfere with other more important commitments.

The opposite of accommodation is not control, it is “rigid perseveration,” in which an outcome is inflexibly pursued no matter what the cost (Brandstätter & Renner, 1990). No complete analysis has been made of the processes that defuse rigid perseveration and allow accommodation to occur when coping with stressful life events (Brandstätter & Rothermund, 2002). However, it is likely that strategies will include cognitive restructuring and focusing on the positive aspects of the current situation, making meaning and finding benefits in adversity, distraction with genuinely pleasurable alternative activities (Folkman & Moskowitz, 2000; Thompson, 1985), and intentionally seeking downward social comparisons. Broadening the study of resilience to include not only strategies of control but also ways of coping organized around relatedness and autonomy will provide a more complete picture of the processes needed to deal constructively with stress and adversity.

Implications for Research on the Development of Coping

The central implication of a developmental analysis of perceived control is that the study of coping as it develops can be organized around specific ages during which children’s understanding of control undergoes qualitative shifts, likely based on underlying temperamental traits, as well as physiological, neurological, and cognitive developments and changes in the environmental challenges and supports available to children. These shifts produce changes in the strategies individuals use to coordinate actions with contingencies in the environment and in the causal schema they use to predict and process causal experiences. Both of these changes shape the ways people cope, and so can be used to focus the developmental study of coping on specific age windows during which corresponding qualitative shifts in coping may be found.

Developmentally graded ways of coping

An analysis of age-graded changes in the means for exerting mastery and becoming helpless has important implications for the measurement of coping. First, assessments of coping should include developmentally appropriate markers of all four coping families organized around control (i.e., problem-solving, information-seeking, helplessness, and escape) at every age. Second, when studies seek to examine age differences or changes, they should be sure that assessments distinguish each of the means hypothesized to characterize coping at different ages, for example, both behavioral and cognitive means of problem-solving and escape (Zimmer-Gembeck & Skinner, 2009).
This analysis also suggests that developmental studies should examine qualitative changes in coping as a supplement to the typical focus on quantitative changes. For example, an important empirical question would be whether one developmentally graded form of coping predicts the subsequent use of a different, but functionally analogous, way of coping at later ages; and whether during transitions when both forms should be readily accessible, the two forms of coping are tightly coupled. Research could also examine whether developmentally-graded members of the same family become hierarchically organized as new forms are added, and could investigate the factors that determine which of the strategies from a person's repertoire will be deployed in a given transaction. For example, do children and youth fall back on earlier forms of coping as stress levels rise, and do they return to more mature forms as social supports increase? Such studies will add to our understanding of the “building blocks” of the area, namely, ways of coping—and should help to move dominant conceptualizations in the field beyond an age-delimited focus on individual differences and toward a view of coping as an increasingly elaborated and flexible repertoire of developmentally ordered responses.

**Qualitative shifts in the understanding of control**

The development of perceived control includes the construction of increasingly complex schema for analyzing multiple causes of success and failure as well as increasingly veridical analyses of individuals' own roles in producing desired and preventing undesired outcomes. These qualitative shifts represent progress toward more accurate prediction and analysis of causal experience. However, each transition also represents a potential turning point during which vulnerabilities can be introduced that will undermine subsequent confidence, engagement, and coping. Future research can focus short-term longitudinal studies on these normative shifts as time windows that may be critical to the development of coping. Explanatory studies can locate normative shifts by focusing on the cognitive developments that likely underlie qualitative changes (Band & Weisz, 1990). Such studies should incorporate important predictors of how the transition will be negotiated, including the individual's previous level of functioning and the nature of the demands in the current situation, especially their severity and objective controllability.

Theories of control also highlight the importance of mapping the roles of social partners, especially caregivers, in shaping the development of coping. They are critical in helping children achieve normative developments in causal understanding without undercutting their initially high sense of efficacy. At the same time, studies should include information from multiple levels of the social context, not only about immediate social partners who participate in coping transactions but also about the social climates and societal assumptions that frame these transactions. Pivotal in this regard are societal and individual mindsets about the nature of personal force, whether it is a stable immutable entity that is displayed by every performance or, instead, is a dynamic plastic capacity that can be improved through sustained effort and practice (Dweck, 1999).

Studies can include key markers of how the developmental shift is progressing, such as individuals’ appraisals and reappraisals of the transaction as well as the strategies that people are actually using to cope with real-life demands—the balance of constructive (e.g., problem-solving, information-seeking) and maladaptive (e.g., helplessness, escape) ways of coping, and the general reliance on immature, age-appropriate, or mature strategies. Research can also trace the emergence of new and adaptive ways of dealing with stress and follow their integration into an increasingly dependable yet flexible repertoire of coping strategies. Critical in this regard would be the identification of factors that allow people to maintain access to the most constructive ways of coping in their current repertoire.

Especially important to assess across these transitions would be the individual’s sense of control and efficacy, which can survive normative improvements in causal understanding only if children and youth (and adults) repeatedly experience transactions with the environment in which outcomes of value can be achieved through sustained effort. Such experiences require objective control conditions characterized by contingency, responsiveness, and manageable levels of difficulty, which remain attuned to the person as he or she develops. They also require judicious social support and the development of increasing levels of actual competence in the person. Such a view makes clear the interlocking dynamics of perceived control and coping, and how previous coping episodes are carried forward in individuals’ own characteristics and in their social relationships. From this perspective, adaptive coping is the grist from which a sense of control is won just as control, strategy, and capacity beliefs permeate stress appraisals and coping responses.
Conclusion
Both perceived control and coping have largely been conceptualized and studied as individual differences phenomena. We hope that by focusing on what is known about the development of perceived control, and highlighting its connections to coping, this chapter may contribute to progress in realizing a developmental agenda for the study of coping. This agenda will conceive of coping as an organizational construct that has the potential to provide an integrative link across multiple levels—from the physiological processes of individual stress reactions to the sociocultural forces that determine the stressors societies allow into people’s lives.

Note
1. Since the most detailed research on development has been conducted in the achievement domain, many of the findings about age changes cannot yet be generalized to other domains of functioning during childhood (for example, peers, or physical or artistic endeavors) or during adulthood (for example, work, romantic relationships, or health).

References


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