A Guide to Constructs of Control

Ellen A. Skinner
Portland State University

An integrative framework, designed to organize the heterogeneous constructs related to "control", is based on 2 fundamental distinctions: (a) objective, subjective, and experiences of control; and (b) agents, means, and ends of control. The framework is used to analyze more than 100 terms, such as *sense of control, proxy control,* and *primary control.* It is argued that although many terms reflect aspects of perceived control (both distinct and overlapping), some are more usefully considered aspects of objective control conditions (e.g., contingency), potential antecedents of perceived control (e.g., choice), potential consequences (e.g., secondary control), sources of motivation for control (e.g., mastery), or other sources of motivation (e.g., autonomy). Implications for theory, measurement, research, and intervention are explored.

Control is important to psychological functioning. Decades of research in sociology and psychology have demonstrated that a sense of control is a robust predictor of physical and mental well-being (M. M. Baltes & Baltes, 1986; Bandura, 1989; Brim, 1974; Fiske & Taylor, 1991; Gurin & Brim, 1984; Lachman & Burack, 1993; Lefcourt, 1981, 1982, 1983; Rodin, 1986; Strickland, 1989; Thompson & Spacapan, 1991) and perhaps even longevity (Langer & Rodin, 1976; Seligman, 1975). Both experimental and correlational studies have shown that across the life span, from earliest infancy to oldest age, individual differences in perceived control are related to a variety of positive outcomes, including health, achievement, optimism, persistence, motivation, coping, self-esteem, personal adjustment, and success and failure in a variety of life domains.

Given the consistency of the findings, it is surprising to note the heterogeneity among the constructs researchers use to describe control. Even a cursory consideration of the area reveals a large number of terms, which, although different, nevertheless seem to be interrelated and partially overlapping (Chanowitz &

Langer, 1980; Rodin, 1990; Thompson & Spacapan, 1991). One set of these constructs is based on the term *control* and includes, for example, *personal control, sense of control, locus of control, cognitive control, agenda control, vicarious control, illusory control, outcome control, primary control, secondary control, action control, decisional control, predictive control, informational control,* and *proxy control.* The other set of constructs does not explicitly use the word *control* but nevertheless seems closely related, if not identical, to the set that does; these include *helplessness, efficacy, agency, capacity, mastery, effectance, effectiveness, autonomy, self-determination, competence, contingency, causal attributions, explanatory style, responsibility, blame, probability of success,* and *outcome expectancy.*

Moreover, within the total set of terms, some appear to be different labels for the same construct. For example, Bandura (1977) referred to "a person's estimate that a given behavior will lead to certain outcomes" (p. 193) as "response-outcome expectancies," whereas H. Heckhausen (1977) labeled the subjective probability that one's actions will modify a situation "action-outcome expectancy," and Seligman (1975) described the degree of the relationship between responses and outcomes in terms of "contingency."

Probably most confusing are cases in which the same term is used to refer to very different constructs. For example, *perceived control* is sometimes defined simply as "the perceived ability to significantly alter events" (Burger, 1989, p. 246) and sometimes as including many facets, such as "the expectation of having the power to participate in making decisions in order to obtain desirable consequences and a sense of personal competence in a given situation" (Rodin, 1990, p. 4). Similarly, the term *relinquishment of control* has disparate definitions. For example, Rothbaum, Weisz, and Snyder (1982) defined it as characterized by perceived uncontrollability and the abandonment of motivation for control, whereas Burger (1989) considered relinquishment of control to include the voluntary yielding of

control to another person, usually a more competent one (see also Miller, 1980, p. 88).

Lack of clarity about constructs has been costly to the study of control in theoretical, empirical, and practical terms. First, the large number of terms has produced some theoretical confusion about the boundaries of the topic of control, about the interrelationships among constructs, and even about which constructs can be appropriately included in the study of control. For example, experts differ with respect to whether autonomy, self-determination, and perceived freedom are within (Rodin, 1990) or outside (DeCharms, 1981; Deci & Ryan, 1985) the domain of control.

Second, using many different names for the same construct has interfered with the accumulation of research findings. Findings about a construct under one label may never be integrated with findings about the same construct under different labels. For example, although locus of control and perceived noncontingency both include beliefs about the connection between one's actions and outcomes, research on these two constructs has rarely been considered in the same review (cf. Lefcourt, 1980).

Moreover, when the same term is used to refer to very different constructs, reviewers may conclude that findings are inconsistent or even contradictory, when in fact it is definitions that are inconsistent and contradictory. An illustration of this situation can be found in discussions of whether control has beneficial or detrimental consequences. For example, in a review of the experimental literature interpreted as demonstrating the negative consequences of increases in perceived control, Burger (1989) defined control in a way that most other researchers would label "contingency." Increasing this kind of "control" has indeed been shown to have negative consequences, such as in cases in which corresponding self-efficacy is low (Bandura, 1977). But it is misleading to conclude that increasing control as it is more typically defined would have the same effects.

In pragmatic terms, the complex terminology in this area impedes researchers in making sound decisions about which constructs to include in their programs of study. Given the multiplicity of constructs, it can be difficult to discern whether a certain set of perceptions may be relatively more important for particular outcomes, for a subset of domains, or for specific age groups. Perhaps because of this complexity, researchers tend to focus on a single construct, or at most two or three. Only recently, for example, have researchers in the health area begun to consider the interaction between health locus of control and self-efficacy of health-related behaviors (Wallston, 1992) or the possibility of control over multiple outcomes (Affleck, Tennen, Pfeiffer, & Fifield, 1987).

Nowhere is confusion more apparent than in the study of the effects of control on adaptation and coping in stressful circumstances (Folkman, 1984). For example, although hundreds of studies have documented the benefits of an internal locus of control, some studies suggest that in times of serious illness, an external orientation might be an advantage (Burish et al., 1984). In medical settings, giving people decisional or informational control sometimes leads to improvements and sometimes to more distress (e.g., Rodin, Rennert, & Solomon, 1980). When reviewing the literature on the costs and benefits of control, researchers have been forced to conclude that "some kinds" of control are beneficial, whereas others seem to be aver-

sive (Averill, 1973; Burger, 1989; Miller, 1979; Thompson, 1981). However, there is little consensus on the kinds of control that are beneficial or harmful and how these may interact with individual or situational characteristics to influence the consequences of control. Of course, some of the ambiguity in this area reflects the complex workings of control in situations of high stress, great trauma, and objective uncontrollability. Researchers simply do not know what is more adaptive in the face of insurmountable odds: Should a person maintain the perception of control, even if it is an illusion (Langer, 1975; Taylor, 1989; Taylor & Brown, 1988), or should a person admit the uncontrollability of the situation and give up (Colvin & Block, 1994; Wortman & Brehm, 1975)? Nevertheless, some of the confusion in this area has been generated by the term *control* or, more precisely, by psychologists' various uses of it (Skinner, 1995, 1996).

Overview of the Article

Goals

The goal of this article is to collect control-related constructs and to organize them according to their definitions. An integrative framework is described that specifies two important dimensions along which constructs of control can be arrayed. The framework is then used to locate and interrelate existing constructs, identifying different labels that have been applied to similar constructs and specifying the dimensions along which constructs differ. I also used the framework to locate several related phenomena, such as helplessness and the illusion of control, as well as to identify constructs that are outside the domain of perceived control proper, such as objective control conditions, possible antecedents of perceived control, reactions to loss of control, motivation for control, and other motivational systems. Then I discuss the specific implications of the framework for identifying the prototype of control, for defining a comprehensive conceptualization of control, for critiquing theories of control that dominate the field today, and for suggesting the expected functions of different kinds of control. Finally, I compare the integrative framework with other typologies of control and discuss its general usefulness for future theoretical, measurement, empirical, and intervention efforts.

Collecting Terms

The proliferation of research on control makes it difficult to assemble a complete list of extant constructs. It seems that in addition to the hundreds of studies conducted on control each year, multiple theories, with their related constructs, are frequently introduced as well. Writers have responded to the situation by assembling lists of related constructs (Chanowitz, & Langer, 1980) and by providing either definitions (Rodin, 1990) or simple typologies (Averill, 1973; Fiske & Taylor, 1991; Miller, 1979; Rothbaum et al., 1982; Thompson, 1981; Thompson & Spacapan, 1991).

As early as 1980 Chanowitz and Langer observed,

> This research has catalogued a number of apparently useful constructs, including perceived control, actual control, cognitive control, behavioral control, decisional control, locus of control . . . , interpersonal control, personal control, self-control, prediction and

control, and the illusion of control—not to mention the associated constructs of freedom, perceived freedom, reactance, power, Machiavellianism, learned helplessness, self-induced dependence, learned industriousness, self-efficacy, and perceived competence. (p. 97)

A decade later, Rodin (1990) reported that "the construct has been called by many different things, including, besides control, self-directedness, choice, decision freedom, agency, mastery, autonomy, self-efficacy, and self-determination" (p. 1). As Thompson and Spacapan (1991) concluded, "Perceptions of control, locus of control, self-efficacy, helplessness, powerlessness, judgments of contingency, control ideology—there is no shortage of terms that fall under the rubric of 'control' " (p. 7).

Hence, it is virtually impossible to assert that any list of terms is exhaustive. Moreover, inclusion of terms becomes especially subjective when reviewers attempt to identify constructs they believe are validly related to control but whose labels do not actually include the word *control* and when they try to identify constructs that do not belong in the study of control but have often been confused with control-related issues. However, because my primary analysis focuses on perceived control, the collection of terms was concentrated in that area. The comprehensiveness of the list of terms incorporating the label *control* was validated by conducting a review of the last 10 years of the *Journal of Personality and Social Psychology* searching for articles with *control* in the title. The comprehensiveness of the list of related terms was checked by including all the terms listed under *control* in the *Thesaurus of Psychological Index Terms* (Walker, 1994).[1] The Appendix presents approximately 100 control-related constructs and their definitions, alphabetized by construct label.[2]

Basic Distinctions Among Constructs of Control

Two basic distinctions are used to form a framework for considering constructs of control. The first distinguishes three aspects of control: objective control, subjective control, and experiences of control. The second distinguishes among agents, means, and ends of control. Two additional distinctions are less central but are often mentioned in the literature: retrospective versus prospective control and specific versus general control. On the basis of these distinctions, a framework is presented that may be useful in organizing constructs of control.

Objective Control, Subjective Control, and Experiences of Control

The most fundamental distinction in the literature on control is between *actual* control, or the objective control conditions present in the context and the person, and *perceived* control, or an individual's beliefs about how much control is available. Some constructs of control focus on the disjunction between objective and subjective control. Classical work on learned helplessness showed that prolonged exposure to objective noncontingency produces cognitive, motivational, and emotional deficits, even in subsequent objectively controllable situations (Seligman, 1975). The reverse combination, in which people have high perceived control in objectively uncontrollable or chance-determined situations, is studied as the *illusion* of control (Langer, 1975).

Objective Versus Subjective Control

The distinction between objective and subjective control is critical to the argument that people's perceived control influences their behavior and emotion, independent of the actual control conditions that may have contributed to those perceptions. As argued by Langer (1979), "Virtually all researchers studying the importance of control will agree that the effects of objectively losing or gaining control will only have psychological significance if the person recognizes (accurately or inaccurately) the gain or loss" (p. 306). In fact, many theorists are convinced that perceived control is a more powerful predictor of functioning than actual control (Averill, 1973; Burger, 1989). In conditions in which no objective control exists, a person's conviction that control is available is enough to mobilize action and modulate arousal (Averill, 1973). Moreover, even in objectively contingent conditions, generalized expectations of noncontingency are sufficient to produce helplessness deficits (Abramson, Seligman, & Teasdale, 1978).

Experiences of Control

An often overlooked but potentially interesting distinction in constructs in this area is the distinction between objective and subjective control, on the one hand, and *experiences* of control, on the other (Chanowitz & Langer, 1980; Langer & Brown, 1975; Skinner, 1985). As opposed to actual conditions (objective control) or beliefs (subjective control), the experience of control refers to a person's feelings as he or she is interacting with the environment while attempting to produce a desired or prevent an undesired outcome. For example, Chanowitz and Langer (1980) distinguished between the description of exercised control ("I can do it") and the experience of exercised control ("I am making it happen"). Experiences of control are products of external conditions (e.g., the degree of contingency between actions and outcomes), subjective interpretations (whether a success is believed to indicate ability or luck; Alloy & Tabachnik, 1984), and individual actions (Chanowitz & Langer, 1980; Skinner, 1985). Prototypical experiences of this sort are referred to in the literature on causal reasoning as "generative transmission" (Shultz, Fisher, Pratt, & Rulf, 1986), in which an individual intentionally exerts effort toward a goal and can feel the energy of the effort transmitted into the environment to produce the outcome. In the control area, these experiences are sometimes referred to as feelings of efficacy (White, 1959) or experiences of mastery (Harter, 1978).

Experiences of control are significant not only because they are powerful affirmations or determinants of changes in subjective control, but also because they seem to be the one aspect of control that is unequivocally beneficial (Skinner, 1996). No matter how bleak the objective conditions, the experience that one can improve them produces positive psychological consequences. Likewise, even without altering objective conditions, one can alter one's experience of them, through either cognitive

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[1] Thanks to an anonymous reviewer for these suggestions on how to improve the search for terms.

[2] A table that contains the same information but is alphabetized by author instead of construct label is available from the author.

means, such as maintaining optimism, or simply minimizing the perception of lack of control by diverting attention away from its experience (Miller, Combs, & Stoddard, 1989).

Agents, Means, and Ends of Control

The second basic distinction that has featured prominently in some conceptualizations of control is the distinction among agents of control, means of control, and ends of control. Ends refer to the desired and undesired outcomes over which control is exerted, agents refer to the individuals or groups who exert control, and means refer to the pathways through which control is exerted. This distinction appears most often in theories of perceived control, but it applies with equal force to objective control conditions.

Although this distinction has been present in sociological thinking for several decades (see Gurin & Brim, 1984, for a review), in psychology it has received the most attention in theories of self-efficacy (Bandura, 1977). In reaction to theories that focused on locus of control and noncontingency, Bandura pointed out that even if individuals believe that outcomes can be influenced by behaviors or responses, they will not attempt to exert control unless they also believe that they themselves are capable of producing the requisite responses. The distinction between beliefs about means–ends connections and agent–means connections can be found in theories of learned helplessness (Abramson et al., 1978), achievement motivation (see H. Heckhausen, 1991, for a review), and developmental conceptualizations of control (Boesch, 1991; J. Heckhausen, 1991; Little, Oettingen, Stetsenko, & Baltes, 1994; Skinner, Chapman, & Baltes, 1988; Skinner, Wellborn, & Connell, 1990; Weisz, 1983, 1986; Weisz & Stipek, 1982). Related terms are summarized in Figure 1. The distinction among agents, means, and ends is especially useful in the analysis of different constructs of control. Some constructs focus on different agents, some on different means, and some on different outcomes. In addition, some conceptualizations examine agent–means relations and some means–ends relations.

Means–Ends Relations

Means–ends relations, whether perceived or objective, refer to the connection between particular classes of potential causes and desired and undesired outcomes. Subjective beliefs about the extent to which certain causes lead to success and failure have been studied as locus of control, judgments or expectations of contingency, universal helplessness, response–outcome expectancies, means–ends beliefs, and strategy beliefs; they are also included in causal attributions and explanatory styles (see Figure 1 for a list of terms and the Appendix for definitions). Control itself has also occasionally been defined solely in terms of means–ends relations (e.g., Burger, 1989). As mentioned previously, this can lead to confusion when control so defined does not have the same consequences as control defined in more typical terms.

Categories of means. Theorists who focus on means–ends relations have invested considerable effort in identifying the classes or categories of causes that may be perceived as means of control. (See Table 1 for a list.) Starting with locus of control, in which "internal" or agent-related causes were contrasted with "external" or non-agent-related causes, theorists have divided internal causes into actions (e.g., behaviors, responses, or efforts) versus attributes (e.g., ability, personality, attractiveness, or genetic makeup). The action category can be further divided into behavioral actions and cognitive actions (or thoughts) as potential means or modes of control (Averill, 1973; Bandura, 1989). External causes have been divided into those that are under the control of "powerful others" of different levels (e.g., task difficulty, the system, institutions, or society) and those that seem to be beyond human control (e.g., chance, luck, fate, God, nature, the cosmos, or unknown causes; Abeles, 1991; Connell, 1985; Levenson, 1973; Weisz, 1986). Some typologies of control have included categories based on distinctions between different kinds of means, for example, behavioral versus cognitive control (Averill, 1973; Fiske & Taylor, 1991; Thompson, 1981).

Because dimensions of causes (e.g., internal vs. external) are bipolar, many researchers expected that beliefs about *categories* of causes that differ on those dimensions would also be bipolar. Contrary to expectations, people's beliefs about the effectiveness of causes have *not* been found to be mutually exclusive. Although it seems reasonable that beliefs about the effectiveness of internal causes (e.g., effort) and external causes (e.g., powerful others) might form a single bipolar dimension, they do not (Connell, 1985; Gregory, 1981; Levenson, 1973; Skinner et al., 1988); they form separate dimensions whose relations can change with age (Skinner, 1990). Only on forced-choice questionnaires are the categories mutually exclusive. In general, beliefs about the effectiveness of causes in different categories can be considered to represent a profile of means–ends beliefs.

Dimensions of means. Why do beliefs in the effectiveness of different means (e.g., effort vs. ability) have a differential impact on subsequent emotion and behavior? Experts agree that the explanation lies in the causal dimensions that underlie the categories of means (Weiner, 1985). For example, an understanding of past failure that highlights lack of effort as the cause can lead to subsequent increased exertion, because the cause is controllable; however, an attribution of failure to lack of ability results in passivity if nothing can be done to improve ability (e.g., Dweck, 1991).

Ever since the empirical study of the effects of beliefs in means began, debate has been spirited about the causal dimensions that underlie contrasting categories and are responsible for their differential effects. For example, effort and ability differ not only in controllability, but also in stability, intentionality, and mutability. Theorists have proposed and tested many different causal dimensions, including internal versus external, stable versus variable, controllable versus uncontrollable, intentional versus unintentional, global versus specific, contingent versus noncontingent, and fixed versus mutable. (See Table 1 for a list.)

In addition to debate about the "active ingredient" in causal dimensions, theorists have discussed whether the dimensions can be orthogonal (e.g., whether all controllable causes must also be internal) and whether people can reliably report the dimensionality of the causes to which they attribute outcomes. The general consensus seems to be that many, if not all, dimensions are orthogonal (e.g., external causes can be controllable—controllable by others) and that adults can reliably report their perceived dimensionality of causes (e.g., the extent to which

Agent-Ends Relations

Control (Chanowitz & Langer, 1980; Thompson, 1981)

Control beliefs (Skinner, Baltes, & Chapman, 1988)

Control expectancy (Little et al., 1994)

Control judgments (Weisz & Stipek, 1981)

Instrumental control (Miller, 1979)

Participatory control (Reid, 1984)

Perceived control (Skinner, 1995)

Personal control (Gurin, Gurin, & Morrison, 1978)

Proxy control (Bandura, 1986)

Sense of control (Abeles, 1991; Brim, 1974)

Subjective control (Skinner, 1985)

Agent-Means Relations		**Means-Ends Relations**
Expectancy (Vroom, 1964)	vs.	Instrumentality (Vroom, 1964)
Efficacy expectations (Bandura, 1977)	vs.	Response-outcome expectations (Bandura, 1977)
Action-outcome expectation (Heckhausen, 1977)	vs.	Outcome-consequence expectation (Heckhausen, 1977)
Personal helplessness (Abramson et al., 1978)	vs.	Universal helplessness (Abramson et al., 1978)
Competence judgments (Weisz & Stipek, 1982)	vs.	Contingency judgments (Weisz & Stipek, 1982)
Efficacy judgments (Gurin & Brim, 1984)	vs.	System responsiveness (Gurin & Brim, 1984)
Capacity beliefs (Skinner et al., 1988, 1990)	vs.	Strategy beliefs (Skinner et al., 1988, 1991)
Agency beliefs (Little et al., 1994)	vs.	Means-ends beliefs (Little et al., 1994)
Perceived competence (Harter, 1978)		Perceptions of control (Connell, 1985)
Collective efficacy (Bandura, 1993)		Attributions (Weiner, 1986)
		Explanatory style (Abramson et al., 1978)
		Responsibility (Crandall et al., 1965)
		Control ideology (Gurin, Gurin, & Morrison, 1978)
		Locus of control (Lefcourt, 1981; Levenson, 1973; Rotter, 1966)

Figure 1. Constructs of perceived control, classified according to relations among agents, means, and ends. For definitions, see the Appendix.

they perceive effort as potentially controllable; Russell, 1983). Although it seems doubtful that children can reliably report dimensionality using adult rating scales, they nevertheless seem able to respond reliably to questions about the dimensionality of specific causes when the questions are phrased appropriately. For example, Dweck and her colleagues have devised a set of questions about the mutability of ability that serves as a reliable and valid indicator for children as young as 4 years old (Dweck & Leggett, 1988).

Agent-Means Relations

Perceived or objective agent-means relations refer to the extent to which a potential means is available to a particular agent. Agents may possess or have access to a means, or they may not. These kinds of beliefs have been studied as self-efficacy expectations, competence judgments, action-outcome expectancies,

agency beliefs, and capacity beliefs. (See Figure 1 and the Appendix.)

Kinds of means. Because in many conceptualizations actions or responses are considered the most salient category of means, agent-means beliefs often are limited to beliefs about whether a particular *response* is in one's repertoire (e.g., self-efficacy or competence judgments). However, the notion can be expanded to include beliefs about the extent to which one possesses or has access to other categories of means, such as attributes, powerful others, societal resources, or even random factors such as luck (e.g., capacity or agency beliefs; J. Heckhausen, 1991; Little et al., 1994; Skinner et al., 1988; Skinner et al., 1990).

Kinds of agents. Constructs of control usually focus on the self as agent. However, other agents of control have also been examined. For example, in studies of the effects of control perceptions in situations of grave illness, researchers have analyzed

Table 1
Kinds of Agents, Means, and Ends Included in Constructs of Perceived Control

Agents	Means		Ends
	Categories	Dimensions	
Self	Actions (behaviors, responses, or effort)	Internal versus external	Outcome
Personal	Cognitions	Stable versus unstable	Performance
Others	Attributes (ability, personality, or genetic makeup)	Controllable versus uncontrollable	Cause(s)
Proxy	Task difficulty	Global versus specific	Consequences
Participatory	Powerful others (teachers or doctors)	Intentional versus unintentional	Symptoms
Collective	System or institutions	Fixed versus malleable	Course
	Fate, chance, luck, God, or cosmos	Benevolent versus malevolent	Own reactions, emotions, or outlook
	Unknown		Effects on others
			Process
			Agenda

the effects of patients' beliefs about control, exercised not only by the patients themselves, but also by doctors and family members (e.g., Thompson, Sobolew-Shubin, Galbraith, Schwankovsky, & Cruzen, 1993; see Table 1 for a list of potential agents.)

Although it was initially assumed that beliefs in powerful others would interfere with a sense of personal control (Burger, 1989), this has not been found to be the case. If external agents have legitimate authority, act on the individual's behalf, and are responsive to the self, they can be seen as benevolent sources of control that augment the power of the self (Antonovsky, 1979). This kind of benevolent external control has been referred to as *proxy control* (Bandura, 1986) and *participatory control* (Reid, 1984). Antonovsky (1979) made the important distinction between "being in control of things," which implies personal control, and "things being under control," which implies a meaningful ordered situation. Confidence in the effectiveness and competence of confederates, especially in times when demands exceed individual expertise, can supplement one's beliefs in one's own self-efficacy (Thompson et al., 1993).

Because research has so often focused on personal control, some writers have mistakenly assumed that constructs of control are necessarily individualistic in nature (Schooler, 1990). However, researchers have also studied perceptions of the effectiveness of groups of people, for example in collective efficacy (Bandura, 1993). Hence, the issue of control can be applied to societies oriented to collectivist ideologies as well as those that are individualistic.

Agent–Ends Relations

Connections between people and outcomes prescribe the prototypical definitions of control. In general, control refers to the extent to which an agent can intentionally produce desired outcomes and prevent undesired ones (Skinner et al., 1988). When individuals believe they can do this, they are said to have personal control, perceived control, or a sense of control. These beliefs are also labeled expectancies of success or outcome estimates. (See Figure 1 and the Appendix.) In recent writings, the construct of self-efficacy has shifted from its original definition of agent–means relations (Bandura, 1977) to refer more generally to agent–ends relations (Bandura, 1989).

Kinds of ends. The targets or goals of control efforts represent one of the most heterogeneous aspects of constructs in this

area. (See Table 1 for a list.) In general, researchers have focused on desired and undesired outcomes. For example, they have asked patients about control over the cause and cure of their diseases, they have asked students about control over their academic success and failure, and they have asked rape survivors about the causes of their attacks. In addition, because control tends to be considered in terms of its effectiveness in interactions with the environment, control outcomes have often been equated with changing the external world to fit with the demands and wishes of the individual (Rothbaum et al., 1982).

However, recent work with normally aging people as well as with people coping with life-threatening illnesses has alerted researchers to possibilities for control beyond control of outcomes in the environment. First, researchers have discovered that when a traumatic event occurs that cannot be undone, survivors are concerned not only with the prevention of similar events in the future, but also with their ability to deal with the multiple consequences of the event. For example, trauma survivors can be concerned about their ability to prevent themselves from experiencing intrusive flashbacks of the events (Bandura, 1989; Fiske & Taylor, 1991; Terr, 1991). In the health domain, researchers have tapped patients' perceived control over not only the cause and cure of their condition, but also its course and symptoms, their own emotional reactions to it, and the effects of the disease process on their loved ones and relationships (central vs. consequence-related control; Thompson, Nanni, & Levine, 1994; see also Thompson et al., 1993). In general, then, it seems that after experiencing a traumatic event, people are concerned with not only amelioration and prevention, but also damage control, repair, and restoration of functioning.

Self as outcome. A second interesting development in this area has been the discovery that people are interested in outcomes of control that involve the self as a target. People have beliefs about the extent to which they are able to control (modify or regulate) their own behaviors, emotions, and outlook (P. B. Baltes & Baltes, 1990; Brandtstaedter, Wentura, & Greve, 1993; Skinner & Wellborn, 1994). In this case, beliefs about control encompass their perceptions of the extent to which they are able to produce desired outcomes or prevent undesired outcomes within themselves. For example, work in the area of self-efficacy has begun to examine people's beliefs about efficacy of thought control and coping efficacy (Bandura,

1989, 1993). And new perspectives on social cognition discuss the possibilities for control over thoughts (Fiske & Taylor, 1991) or mental control (Wenzlaff et al., 1988).

Other Distinctions

Two additional distinctions that often appear in the literature on control are retrospective versus prospective control and global versus specific perceptions of control. The distinction between retrospective and prospective control refers to the time orientation, that is, whether subjective control describes the past, present, or future. Control perceived in the present is described in time-neutral terms. (These labels can suggest that subjective control reflects mental processes, through the use of such terms as *estimates, judgments, representations,* and *evaluations,* or that it reflects cognitive constructions, through the use of terms such as *beliefs, convictions, understanding,* and *sense of control.*) Interpretations of past control are sometimes simply referred to as "retrospective control" but can also be used more narrowly to refer to beliefs about the *causes* of past outcomes, with terms such as *explanations* and *attributions.* Future control can be labeled *prospective control, anticipatory control,* or simply *expectations of control* or *control expectancies.*

In addition, control beliefs can be arrayed along a continuum from the extremely situation-specific to the extremely general or global. At the specific pole are control beliefs that are relevant only to certain episodes, interactions, or behaviors, such as being able to lift weights of a certain number of pounds or solve subtraction problems involving a certain number of digits. At the general or global pole are beliefs that span all outcomes and areas in life; these beliefs may be considered almost worldviews. In between are beliefs that focus on specific domains of life, such as health, work, school, marriage, and peer relationships.

These two distinctions are less useful for organizing constructs of control, because any kind of belief can appear as either retrospective or prospective and at any level of generality. It is true that, currently, researchers associate different constructs with different time orientations and levels. For example, self-efficacy is usually assessed as prospective and at an extremely specific behavioral level (Bandura, 1977), whereas locus of control in current formulations is time neutral and domain specific (Connell, 1985; Lachman, 1986; Lefcourt, von Baeyer, Ware, & Cox, 1979), and explanatory style is seen as retrospective and is assumed to cross many domains (Abramson et al., 1978). However, these associations reflect only the decisions of theorists and are not intrinsic properties of the kinds of beliefs. For example, agent–means connections, such as self-efficacy, could be retrospective and general.

A Framework for Organizing Constructs of Control

Together, these dimensions form a scheme into which existing constructs of control can be arranged. This is depicted graphically in Table 1 and Figure 1, which organize constructs according to the agents, means, and ends of control and their interrelations, respectively. Each construct in these tables can be used to refer to control at any level of specificity or generality and oriented toward the past, present, or future. The first implication of the framework to be explored is that it identifies constructs that are outside the domain of perceived control itself.

Terms Outside the Domain of Perceived Control

In discussions of terms that do not describe perceived control per se, it is useful not only to explain why they do not refer to perceived control, but also to note the conceptions to which they do belong. Five sets of constructs are described in this section (see Table 2). I argue that four are related directly to perceived control: objective control conditions, potential antecedents of control, consequences of control, and motivation for control. However, I argue that a fifth set of terms, organized around the construct of autonomy, is orthogonal to issues of control.

Objective Control Conditions

As mentioned earlier, objective control conditions refer to the amount of control actually available in the situation. Like perceived control, these can be organized by their agents, means, and ends. The set of terms usually used to refer to objective control conditions focuses on the actual connection that exists between means (usually actions) and ends. A landmark in the identification of objective control conditions was achieved by Seligman and his colleagues and, as described in the classical learned helplessness work (Seligman, 1975), specifies one kind of uncontrollability, namely, noncontingency or response–outcome independence (see also Alloy & Abramson, 1979). Other terms used to describe this relationship are *responsiveness* and *sensitive responsiveness* (Ainsworth, 1979).

Moreover, analogous to work on subjective control, a corresponding set of objective control conditions can be identified that refers to the actual connection between an agent and the production of behavioral responses. These objective control conditions are studied using constructs such as action control, self-control, learned resourcefulness, competence, the response or action repertoire, and self-regulation. For example, in theories of "functional helplessness," researchers have examined how prolonged exposure to noncontingency can block action, that is, interfere with the implementation of intended actions (H. Heckhausen & Gollwitzer, 1987; Kuhl, 1984).

Potential Antecedents of Control

A second set of constructs can be grouped together on the basis of their potential effects on perceived control. They are not descriptions of actual control conditions, because they do not refer directly to means–ends (e.g., contingency) or agent–means (e.g., action implementation) connections. Nevertheless, they do refer to a set of objective conditions that have been hypothesized to have the potential to influence experiences and perceptions of control. The most prominent among them are information, choice, and predictability. In fact, some theorists so strongly believe that these antecedents are connected to control that they have labeled them *informational control, decisional control,* and *predictive control.* However, research has clearly shown that increases in information, choice, or predictability do not always lead to more actual or perceived control (Miller, 1979). In addition, this kind of labeling is conceptually confusing. It is an empirical question whether and under what conditions information, choice, or predictability is likely to change subjective control (Skinner, 1996).

Table 2
Constructs Outside Perceived Control Proper

Sources of motivation for control	Potential antecedents of control	Objective control conditions		Potential consequences
		Agent–means relations	Means–ends relations	
Effectance motivation	Choice	Action control	Actual contingency	Action
Mastery motivation	Information	Self-control	Responsiveness	Approach versus avoidance
Need for competence	Predictability	Self-regulation	Sensitivity	Mastery versus helplessness
Desire for control	Warning signal	Actual competence		Motivation, emotion
	Regulated administration	Action repertoire		Engagement versus disaffection
	Decisions	Learned resourcefulness		Action regulation
Other sources of motivation				Coping
Need for self-determination				Primary control
Need for autonomy				Secondary control
Reactance				Relinquishment of control
				Helplessness

Note. See the Appendix for reference citations and definitions.

Potential Consequences

This set of constructs refers to reactions to opportunities and losses of control, that is, to descriptions of actions and reactions in the face of differing objective or subjective control conditions. Because of the broad array of effects of control, this is the most heterogeneous set of constructs. It draws from all the disciplines that have studied the effects of perceived control.

The simplest set of outcomes can be encompassed by the terms *action* (H. Heckhausen, 1977, 1991; Skinner et al., 1988), *approach versus avoidance* (Roth & Cohen, 1986), *mastery versus helplessness* (Dweck, 1991), *motivation and emotion* (Weiner, 1985), or *engagement versus disaffection* (Connell & Wellborn, 1991; Wellborn, 1991). When people perceive that they have a high degree of control, they exert effort, try hard, initiate action, and persist in the face of failures and setbacks; they evince interest, optimism, sustained attention, problem solving, and an action orientation. When people perceive control as impossible, they withdraw, retreat, escape, or otherwise become passive; they become fearful, depressed, pessimistic, and distressed. This set of reactions forms the cornerstone for all major theories of perceived control. For example, the negative pole of this reaction as the result of prolonged exposure to objective noncontingency has been referred to, in the classical work, as *learned helplessness* (Seligman, 1975).

Reactions to threats and loss of control have also been studied under the rubric *coping*. Individuals' appraisals of whether the stressful situation is potentially controllable and whether their resources are adequate to exercise control have been hypothesized to influence the kind of coping they will show (Compas, Banez, Malcarne, & Worsham, 1991; Folkman, 1984). Appraisals of high control should lead to information seeking, planning, strategizing, preventative efforts, and direct action. Appraisals of low control should lead to confusion, escape, pessimism, and passivity (Skinner & Wellborn, 1994).

Primary Control, Secondary Control, and Relinquishment of Control

Recently, these two broad coping reactions to threats and loss of control have been subsumed under the labels *primary control*

and *relinquishment of control* (J. Heckhausen & Schulz, 1995; Rothbaum et al., 1982). In general, primary control refers to reactions to threats to control that attempt to regain or reestablish control, that is, the person's attempt to change the environment to fit with his or her wishes. In contrast, relinquishment of control, in this context, refers to the abandonment of attempts to do anything about the negative situation; its prototypical manifestations are passivity and helplessness.

Theorists have suggested that in addition to attempts to "fix" the environment and the abandonment of action, there is a third alternative, sometimes labeled *secondary control* (J. Heckhausen & Schulz, 1995; Rothbaum et al., 1982). Unlike relinquishment of control, this reaction to threats or loss of control is active and goal directed. However, unlike primary control, it is aimed not at the environment, but at the self. It encompasses the ways individuals can change themselves to minimize or ameliorate losses or threats to control. For example, when a goal cannot be reached, the effects on perceived control can be minimized by extending the timetable for the goal or reducing aspiration levels (Brim, 1992). Or, if an aversive event is inevitable, its effects can be minimized by preparation for the negative event and distraction from its experience (Miller, 1980).

In the present context of clarifying the terminology surrounding constructs of control, it is considered unfortunate that these reactions have been labeled control. They are really potential *actions* and *reactions* to losses of subjective or objective control. They are not objective or subjective control processes themselves. To be sure, much research suggests that high perceived control facilitates active constructive engagement with the social and physical context (primary control), whereas low perceived control makes it easier to "fall into helplessness" (Seligman, 1975; relinquishment of control). However, there are other self-system processes that promote constructive engagement, such as autonomy or self-determination (Deci & Ryan, 1985; Patrick, Skinner, & Connell, 1993). And there may be certain situations (e.g., low-control circumstances) under which perceptions of control may actually lead to disengagement (Janoff-Bulman & Brickman, 1982). The nature of these links is an empirical question, and it is conceptually confusing

to label them a priori primary control and relinquishment of control.

Especially misleading is the use of the term *secondary control* to refer to accommodative processes (Brandtstaedter & Renner, 1990) in which individuals attempt to change themselves to fit in with the demands of the environment. To date, there is simply no evidence that this set of processes is regulated in any way by objective or subjective control. In fact, the few studies that have directly assessed the relations between perceived control and secondary control have shown that secondary "control" reactions are outside the direct effects of perceived control. First, items assessing primary control and relinquishment of control form a single bipolar factor (labeled *assimilative processes* and ranging from tenacious goal pursuit to helplessness) that is distinct empirically from items assessing secondary control (labeled *accommodative processes* and ranging from flexible goal adjustment to rigid perseverance; Brandtstaedter & Renner, 1990). Second, and more important, perceptions of control are related only to assimilative processes and do *not* seem to influence or to be influenced by secondary "control" (Brandtstaedter & Renner, 1990).

Hence, just as including the term *control* in the construct labels for potential antecedents of control (e.g., information) has been considered misleading and has generally been discontinued (Thompson, 1981), so too is it conceptually confusing to include *control* in construct labels for its potential consequences (especially when alternatives are available, such as "assimilative vs. accommodative processes"; Brandtstaedter & Renner, 1990). Only when researchers stop assuming that accommodative processes are secondary control can they begin to consider more broadly the kinds of self-system processes (or other factors) that allow individuals to accept and even make the most of negative events that befall them.

Motivation for Control

The last set of related, but distinct, constructs focuses on the question of why people form perceptions of control and why these perceptions should have such a pervasive impact on physical and psychological well-being. One explanation holds that all people innately desire to engage in effective interactions with the environment, interactions in which they experience themselves as producing desired effects and preventing undesired effects. This fundamental human motivation has been referred to as effectance motivation (White, 1959), mastery motivation (Harter, 1978), or the need for competence (Connell & Wellborn, 1991; Deci & Ryan, 1985; Skinner, 1991, 1995). According to this perspective, effectance motivation encourages people to seek opportunities for interacting with the environment; supports mastery strivings during interactions; and is the source of absorption, involvement, and joy during the process of attempting to produce desired outcomes. In addition, when this basic need is thwarted or violated by threat or loss of control, it is the source of distress and efforts to reassert control, or escape from the situation.

The need for competence is closely related to other control constructs. Objective control conditions describe the actual opportunities provided by the social and physical context for people to meet the need for competence. The need for competence launches and supports people's interactions with the context

and provides the feelings of efficacy that result from experiences of control. Individuals' cumulative experiences of these interactions, combined with their interpretations of the accompanying successes and failures, become crystallized as "perceptions of control." Nevertheless, the notion of a psychological need for effectance as a motivational source is distinct from objective, subjective, or experienced control.

Self-Determination

The need for competence is often confused with the need for autonomy or self-determination, and hence perceived control constructs are often confused with the belief systems that result from experiences of autonomy, such as locus of causality (DeCharms, 1981; Rodin, 1990). Following experts in the field of intrinsic motivation (Connell & Wellborn, 1991; DeCharms, 1981; Deci & Ryan, 1985), I argue that constructs related to autonomy are outside the proper domain of control. More specifically, the need for autonomy or self-determination refers to the innate desire to experience one's true self as the origin of one's own actions (e.g., DeCharms, 1981; Deci & Ryan, 1985), which is distinct from the need for competence (the desire to experience oneself as effective in producing and preventing desired and undesired outcomes). As stated by Deci and Ryan (1985) "There are very important differences between the concepts of control and self-determination. Control refers to there being a contingency between one's behavior and the outcomes one receives, whereas self-determination refers to the experience of freedom in initiating one's behavior" (p. 31).

The perceptions accompanying experiences of autonomy are also different from those accompanying experiences of control and have been described and operationalized separately in constructs such as reactance (Brehm, 1966), perceived freedom (Steiner, 1970), locus of causality (origin vs. pawn; DeCharms, 1968), autonomy orientations (Deci & Ryan, 1985), and self-regulatory styles (Ryan & Connell, 1989). These belief systems also have antecedents distinct from those of perceived control (for a review, see Ryan, 1982).

Implications of the Integrative Framework for the Study of Perceived Control

This framework can be used to set some broad parameters on the theoretical space that may be validly included in the study of perceived control. It also has more specific implications for theory and research, such as suggestions for the prototype of control, the standards for comprehensive conceptualizations of control, the functions of different kinds of control constructs, and the kinds of control that should be beneficial. This section concludes with a comparison between the present integrative framework and other typologies of control, as well as suggestions for future research.

Parameters of the Study of Perceived Control

The present framework suggests that it may be useful to distinguish broadly among several classes of phenomena related to control, specifically, (a) sources of motivation for control; (b) potential antecedents of control; (c) potential consequences of control (both beneficial and detrimental); and (d) subjective,

objective, and experienced control. Sources of motivation (e.g., a need for competence, effectance, or mastery), if not simply assumed, can be assessed and studied independently from the strivings for control they hypothetically launch and the belief systems that result from these cumulative interactions (e.g., Burger, 1992). This motivation for competence can also be assessed and studied separately from other sources of motivation, most specifically, the need for autonomy or self-determination (e.g., Connell & Wellborn, 1991). Although both of these sources of motivation are important and they may act synergistically (e.g., Patrick et al., 1993), some confusion in the study of control would be alleviated by recognizing that they are distinct.

Potential antecedents of control include phenomena (usually located in the social or physical context) that can be hypothesized to influence objective control conditions or perceived control. These phenomena include information, choice, warning signals, regulated administration, help, feedback, and instructions and, depending on how they are provided, may or may not achieve the intended effect of changing the actual amount of control present (objective control conditions) or the individual's perceptions of control. It would alleviate some confusion in the control area if researchers recognized that it is an empirical question about the circumstances under which changing these potential antecedents does indeed produce changes in control.

Consequences of control include individuals' reactions to their experiences and interpretations of control and encompass responses to both actual and expected gains, challenges, threats, and losses of control. The confusion in this area would be reduced if researchers recognized that labeling potential reactions to loss of control *primary control* or *secondary control* does not automatically connect them to control processes. It remains an empirical question to determine individuals' reactions to different kinds of actual and perceived control. And it is a separate empirical question to determine when these reactions have adaptive and maladaptive long-term consequences for the individual.

Finally, within control constructs proper, the distinction among objective control conditions, subjective control, and control experiences refers to three distinguishable but interrelated aspects of control itself. Both objective control and subjective control can be characterized by the distinctions presented earlier, that is, the distinctions among agents, means, and ends of control; between retrospective and prospective control; and between global and specific control. Because control itself is the central target of this analysis, I discuss some implications for these constructs in more detail below.

Personal Control and Everything Else

An important implication of the foregoing analysis is that within the very broad range of constructs considered in the control area, there is a central or prototypical control construct: personal control. To use terminology from the framework, this prototype involves the self as agent, the self's actions or behaviors as the means, and an effected change in the social or physical environment as the outcome. In addition to *personal control*, this prototype of control has been referred to as a *sense of control*, *instrumental control*, *functional control*, *behavior or behavioral control*, *personal force*, and sometimes *self-efficacy* (see

Figure 1). According to the present framework, personal control is the prototype of control because it reflects the most direct and immediate *experiences* of control, namely, generative transmission. These are the kinds of interactions with the environment that, from earliest infancy, are recognized and enjoyed (Papousek & Papousek, 1967, 1979, 1980; Watson, 1966).[3]

If the prototype of control involves the self, action, and effected changes in the environment as the agent, means, and ends of control, respectively, then several of the definitions of *control* listed in the Appendix do not qualify as this prototype. Some refer only to means–ends connections, usually contingencies (Brickman et al., 1982; Burger, 1989; Connell, 1985; Glass & Carver, 1980; Steitz, 1979). For example, Glass and Carver (1980) stated "The concept of control may be defined in terms of perceptions of contingencies. If a person perceives a contingency between his behaviors and an outcome . . . the outcome is considered controllable. In contrast, if a person believes that his actions do not influence the outcome, the outcome is considered uncontrollable" (p. 232). The current analysis suggests that such constructs are better labeled *perceived contingency*.

In contrast to definitions of control that seem too narrow are those that seem too broad. For example, Rodin (1990) defined perceived control as "the expectation of having the power to participate in making decisions in order obtain desirable consequences and a sense of personal competence in a given situation" (p. 4). This definition seems to include power and decisions in addition to control per se. Finally, some definitions of control seem to miss the point of control altogether. For example, Lefcourt (1973) defined a sense of control as "the illusion that one can exercise personal choice" (p. 424). According to the present framework, choice is more closely allied with autonomy.

My intention is not to criticize specific theorists, who articulated definitions of control as the complex field was rapidly developing, but simply to point out that consensus is now emerging about the prototype of personal control and that there are sound reasons for this consensus. Hence, it is no longer the case that all definitions are created equal. No matter how useful alternative definitions were previously, at the current time it is conceptually confusing and potentially detrimental to the cumulation of work in this field to continue using contradictory definitions of personal control.

Other Agents, Means, and Ends of Control

Without disputing the centrality of personal control, recent research and theorizing suggest that alternative agents, means, and ends can legitimately produce experiences of control and influence control perceptions. Hence, agents other than the self can be perceived as influencing outcomes, and if these agents are viewed as benevolent and acting on one's own behalf, they not only do not interfere with personal control, but also may

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[3] This may also be one reason why so many theories that consider the distinction between agent–means and means–ends beliefs also focus on the self as agent, actions as means, and changes in the environment as outcomes. These theories focus on competence and contingency (Weisz, 1986; Weisz & Stipek, 1982) or on self-efficacy and response–outcome expectations (Bandura, 1977).

actually augment or enhance it (Antonovsky, 1979; Bandura, 1993).

Means other than responses, behaviors, and actions have also been found to be important to a sense of control. Individuals may recognize the potential influence of their own cognitions or thoughts, their own attributes (e.g., ability or attractiveness), or the effectiveness of outside forces (e.g., powerful others or fate) on desired outcomes. It seems possible that a belief in these nonaction means may not interfere with personal control, if the means are seen as accessible to and modifiable by the self.

Finally, outcomes in addition to events in the external social and physical environment may be important targets of control efforts. Especially in circumstances in which outcomes cannot be undone or repaired (e.g., victimization, accidents, or losses) or in which outcomes seem to offer few possibilities for control, people have been shown to turn to control over future outcomes and over the multiple consequences of aversive events, including the course of recovery or adaptation, side effects, emotional consequences, and effects on others.

Competence and Contingency

One of the most important implications of the present framework is that both objective control and subjective control require that two conditions be met: There must be at least one means that is effective in producing a desired outcome or in preventing (ameliorating, avoiding, escaping, or minimizing) an undesired one, and the individual must have access to that means. In other words, a sense of control includes a view of the self as competent and efficacious and a view of the world as structured and responsive (Bandura, 1977; Gurin & Brim, 1984; Weisz, 1986).

Given that this notion has generally been accepted in the field since Bandura's (1977) seminal article, it may seem surprising how little prominence it is given in the four major conceptualizations of control that dominate the field today, namely, locus of control, attribution theory, learned helplessness, and self-efficacy. Locus of control theorists have long focused on means–ends relations and have only recently augmented their assessments with indicators of self-efficacy (Wallston, 1992). In current discussions of the detrimental effects of control, locus of control is still sometimes considered an appropriate indicator of control (e.g., Christensen, Turner, Smith, Holman, & Gregory, 1991).

Attribution theories, which basically seem to be focusing on the causes of outcomes, or on means–ends relations, actually combine agent–ends and means–ends beliefs when assessing attributions about both success and failure (Brewin & Shapiro, 1984). Attributing a success to a cause (e.g., "I succeeded because of ability") implies both a belief in the importance of the cause (a means–ends connection) and a statement about the agent's access to a cause ("I am smart"). In contrast, attributing failure to the same cause (e.g., "My failure was due to ability") implies a similar endorsement of the importance of the cause (i.e., ability) but an opposite assessment of the agent's competence (e.g., "I am dumb"). In attempts to improve attributions (e.g., through attributional retraining; Foersterling, 1985), it is essential to determine which set of beliefs needs to be adjusted: causal beliefs (as implied by attribution theory) or beliefs about the competence of the self.

Reformulated learned helplessness theory includes the distinction between means–ends and agent–means connections in the difference it posits between "universal" and "personal" helplessness (Abramson et al., 1978). *Universal helplessness* refers to the belief that no connection exists between any individual's responses and a desired outcome, whereas *personal helplessness* refers to the belief that although a connection exists between responses and outcomes for others, no such connection exists for the responses in one's own repertoire. Conceptually, then, universal helplessness refers to beliefs about contingencies, or means–ends relations, whereas personal helplessness refers to beliefs about one's own competence, or agent–means relations.

Moreover, sometimes researchers tap these constructs using questionnaires that assess explanatory style and target as a sufficient cause of helplessness explanations for failure that refer to causes that are internal, stable, and global (Abramson et al., 1978). What are internal, stable, and global causes? They are by definition attributes of individuals, such as personality or ability, and the belief that failure is due to one's attributes implies that positive attributes are missing (or negative ones are present). This kind of explanatory style seems more akin to agent–means relations than to the original focus of helplessness, which was perceived noncontingency (or means–ends relations).

Even in work grounded in self-efficacy theory, where the distinction between competence and contingency has received the most attention, studies rarely, if ever, assess both efficacy and response–outcome expectations. In fact, as the name of the theory implies, only self-efficacy is typically examined. Although hundreds of operationalizations of self-efficacy have been developed in domains ranging from school subjects to health behaviors, few corresponding assessments of response–outcome expectations exist.

If all these theories focus only on single aspects of control, how is it possible that these portions of perceived control nevertheless manage to exert powerful effects on behavior, motivation, emotion, and coping? There are two general answers to this question. First, although construct labels emphasize only one aspect, construct definitions and operationalizations sometimes combine both aspects of control. For example, as described in the foregoing analysis, attributions and personal helplessness combine competence and contingency. Even within self-efficacy theory, when self-efficacy is defined as an individual's conviction that he or she can produce the controlling response, then high self-efficacy also implies the belief that a controlling response (a means–ends connection) already exists. In fact, in each case where a construct exists that combines competence and contingency, this construct shows more powerful effects than any single aspect. For example, in the work on attributions, attributions about *failure* (which imply an absence of competence) are more powerful predictors than attributions about success. In the helplessness work, personal helplessness is a consistently better predictor of outcomes than universal helplessness.

Second, when researchers have examined only one aspect of control, they have tended to do so under conditions in which the unmeasured aspect is already present and high. For example, the effects of noncontingency are assessed in situations in which the actions needed to operate the contingencies are guaranteed

to be in everyone's repertoire. Or, the effects of self-efficacy are examined in contexts (e.g., schools) in which response–outcome contingencies are known to be high.

Finally, because both competence and contingency are necessary conditions for objective and subjective control, it is possible to show the effects of either one alone simply by examining the consequences of its absence. That is, when research focuses on either incompetence or noncontingency, these conditions alone are sufficient to undermine behavior, motivation, or emotion. In interventions that seek to enhance control, however, researchers must attend to both aspects. Hence, when theories and research studies suggest that only one aspect, be it self-efficacy or locus of control, is the central determinant of control experiences, without acknowledging the operationalizations or situational constraints that allow these effects (i.e., the other aspect is included or is already high and invariant), they are confusing conceptually and misleading in their implications for formulating interventions to optimize control.

Functions of Perceived Control

The integrative framework suggests that any construct of control can be viewed as either prospective or retrospective and as falling anywhere along the continuum from specific to general. Although seemingly straightforward, this statement has two potentially controversial implications. First, it implies that although different constructs have typically been assessed as prospective or retrospective and at a particular level of generality, there is no compelling theoretical reason why this should necessarily be a defining feature of a particular construct. For example, self-efficacy has typically been measured as a prospective, extremely specific set of beliefs (Berry & West, 1993). However, when efficacy is seen as one example of agent–means beliefs, it becomes clear that agent–means beliefs can be constructed about past episodes and at any level of generality.

Even though any construct can be considered at any level, the empirical effects of using prospective versus retrospective and specific versus general beliefs are clear. The more specific a construct is to a particular domain and behavior, the stronger the magnitude of the relations between that belief and corresponding behaviors in that domain (e.g., Lachman, 1986; Lefcourt et al., 1979). At the same time, the more general the construct, the greater the scope of its correlates, in that a very general set of beliefs relates to behaviors in a greater variety of domains (Rotter, 1975).

Prospective versus retrospective beliefs can also be seen to have different consequences, probably because they have different functions in the action cycle (H. Heckhausen, 1977, 1991; Skinner, 1991, 1995). Prospective or expected control has its primary effects on action regulation: on how much anxiety or fear is experienced before interactions (anticipatory phase) and on response initiation, effort, exertion, and persistence (Bandura, 1989). In contrast, retrospective control (e.g., causal attributions or explanatory style) has its primary impact on the interpretation of interactions, the different emotions that accompany success and failure (Weiner, 1985), and the effects of prior interactions on future beliefs and performance. In sum, according to this analysis, decisions about time orientation and generality of constructs, which can be made separately from decisions about constructs themselves, should have an impact

on the scope, strength, and kinds of consequences that would be expected to follow from different kinds of control.

Retrospective Control

The distinction between competence and contingency may also be helpful in addressing some of the confusion surrounding the effects of certain kinds of retrospective control. In some analyses, a person can be said to report "control" retrospectively over a failure or traumatic outcome (e.g., onset of a disease or victimization). Technically speaking, of course, unless a person intentionally decided to cause something bad to happen, which is almost never the case, the meaning of retrospective control over a terrible event must be different from the meaning of retrospective control over success.

Retrospective control over success implies that both contingency and competence were present and therefore also implies prospective control or anticipated control over future outcomes. In contrast, retrospective "control" over bad outcomes can have several different meanings, each with different implications for future control. Typically, this kind of "control" refers most directly to the perception of contingencies, in this case, the perception that a connection existed between the behaviors of the individual and the undesired outcome (e.g., Thompson, 1981). This contingency, sometimes labeled and experienced as "responsibility," can be accompanied by reports of retrospective competence, such as "I could have acted effectively, but I didn't"; in this case, retrospective "control" of negative events can lead to anticipated control of future events, if the individual intends to execute behaviors that will prevent or terminate the negative event. However, if the experience of responsibility is accompanied by doubt in one's capacities to exercise controlling responses to such negative events in the future, retrospective "control" can lead to helplessness, fear, anxiety, guilt, and shame.

Experiences of Control

Finally, the present framework highlights an aspect of control that has been mentioned in discussions of mindful control (Chanowitz & Langer, 1980; Langer & Brown, 1975), mastery (Harter, 1978), and effectance motivation (White, 1959). This aspect is the experience of control. Defined as the cumulation of action–outcome episodes that accrue from an individual's actions in a set of objective control conditions that the individual interprets according to his or her subjective control beliefs, experiences of control are thought to be at the core of explanations for why objective and subjective control have such powerful effects across the life span. If these experiences meet individuals' innate need for competence or effectance, they will produce joy and interest and their loss will result in distress. Experiences of control, as captured in ratings of effectiveness or feelings of efficacy, should have uniformly positive psychological (and physiological) effects.

Comparison of the Present Framework With Other Typologies of Control

The integrative framework I propose differs from previous typologies of control in both the number of dimensions and the

comprehensiveness of constructs it includes. In one of the first attempts in the area, Averill (1973) distinguished three kinds of control: behavioral, cognitive, and decisional. Later, Miller (1979) distinguished among decisional control, instrumental control, and potential control. Thompson (1981) distinguished among behavioral, cognitive, and retrospective control, and added information. Weisz (1983) distinguished phenomenological from objective approaches, generalized from situation-specific control, and logical from illogical processes. Distinctions proposed by Rothbaum et al. (1982) include primary versus secondary control and, within each, control that is vicarious, illusory, predictive, and interpretative. Also using the primary and secondary control distinction, J. Heckhausen and Schulz (1995) further distinguished illusory from veridical and functional from dysfunctional control strategies. In describing important control terms, Fiske and Taylor (1991) mentioned six kinds of control: behavior, cognitive, decision, information, retrospective, and secondary. In describing distinctions among types of control that are particularly important, Thompson and Spacapan (1991) suggested contingency versus competence versus control, primary control versus secondary control, and global versus specific measures of control.

Each of these typologies has been useful to investigators reviewing the heterogeneous research on control. In critiquing them, I would begin by asserting that certain terms should not be considered as referring to kinds of objective or subjective control. For example, *decisional control* and *informational control* more properly refer to potential antecedents of perceived control and *primary control* and *secondary control* more correctly refer to potential consequences. Some terms can be criticized for including more than control; for example, *cognitive control* seems to encompass any cognitive strategy that changes a person's view or experience of an event.

However, more important than the issue of whether certain terms should be considered as inside or outside the theoretical space of control, is a critique of the typologies themselves, or more specifically, of the sets of distinctions they chose to highlight. For the most part, these schemes do not seem to be intended to be classification systems nor to be comprehensive with respect to the range of control constructs considered here. For example, in the several systems built on Averill's (1973) early distinctions, one kind of control refers to a specific means of control (behavior control), one to a set of thought processes (cognitive control), two to potential antecedents (decision and information), and one to time orientation (retrospective control). There is no attempt to describe the theoretical space in terms of dimensions (e.g., no mention is made of prospective control as the potential opposite of retrospective control). Even in classification systems that do include dimensions or categories, some of the dimensions are problematic. For example, systems that differentiate veridical from nonveridical control must compare objective and subjective control, a process that is extremely difficult, if not impossible, in a priori conceptual terms.[4] Similarly, any classification system that distinguishes functional from dysfunctional control strategies seems to be categorizing control constructs on the basis of their consequences, also a risky conceptual enterprise.

The current framework does, of course, build on distinctions also proposed by others. However, the goal was to create a classification system by selecting essential and orthogonal dimensions that underlie the vast array of constructs of control. In one sense, the integrative framework should provide a map within which most, if not all, extant constructs of control can be located. According to this framework, all constructs can be classified as objective, subjective, or experienced and as referring to connections between agents and means, means and ends, or agents and ends. Constructs can be compared on these grounds as well as on whether they differ on the agents of control, means of control, and outcomes of control. For example, self-efficacy and agency beliefs are similar in that they both refer to subjective control about agent–means connections, but they differ on the means of control (self-efficacy includes only responses). Finally, and more superficially, constructs can be compared on whether they refer to future or past experiences and whether they have specific or general domains as their referents.

Conclusion

I have proposed the present framework in an attempt to provide a guide to constructs of control. In addition to allowing various extant constructs to be described, classified, and compared, this framework has some general implications for theories, research, and interventions in the area of control. Theoretically, it should not be interpreted as suggesting that everyone working in the control area adopt the terminology used here to describe important distinctions. *Agent–means beliefs* will never replace *self-efficacy* as a term to describe people's convictions that they possess a controlling response. However, it does suggest that any conceptualization of control that claims to be comprehensive needs to consider both agent–means beliefs (whatever they are labeled) and means–ends beliefs. Only then can research identify the circumstances in which one of these aspects of control has the primary effect (usually when the other is already high) and the circumstances in which they produce unique, additive, or synergistic effects. Theories that ignore one aspect of control or do not acknowledge the situational constraints that allow their target construct to produce good outcomes are confusing conceptually.

At the very least, this framework suggests that theorists continue to be explicit about their construct definitions. If so, then they can use this map to locate parallel or identical constructs. For example, if they define control in a way that includes only means–ends relations (e.g., Burger, 1989), they should not be surprised if these beliefs do not function like other control beliefs (usually defined in terms of agent–ends relations); instead, they should expect this kind of control to show the same empirical relations as shown by constructs that other theorists have labeled *perceived contingency, response–outcome expectations, locus of control,* and *strategy beliefs.*

In terms of measurement, this framework suggests that researchers may need to be explicit in their assessments of control if they want to operationalize their target constructs successfully. The multiplicity of perceived control constructs suggests that people have complex and sophisticated understandings of many facets of control. The use of simple questions such as

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[4] "Non-veridical" control is very difficult to identify apriori unless it is defined in a very narrow sense such as the belief in personal control over chance-determined events.

"Did you have any control over outcome Y?" may result in answers that reflect perceptions of contingency; control itself; a sense of effectiveness; or even, when the outcome is negative, feelings of responsibility or self-blame. To tap the specific control constructs reviewed here, measures must be more precise than common language.

In terms of research, the distinctions included in this framework may help investigators make decisions about which control constructs are most likely to predict specific consequences in particular domains for people at different developmental levels. In addition to considering time orientation and generality, researchers may want to think through whether their control constructs tap both contingency and competence and how their constructs are related to experiences of control. This framework also suggests that an additional avenue of research will open up when researchers stop using the term *control* in their labels for potential antecedents and consequences of objective or perceived control and instead look at these questions empirically.

Regarding interventions, this framework suggests that any practitioner who attempts to optimize functioning may wish to begin with an analysis of the individual's experiences of control. Any changes in objective control conditions or subjective control, or in other antecedent conditions that may alter control, should be analyzed with respect to their likely effects on the individual's experiences of interactions in the intervention context. In addition, as interventions proceed, it may be useful to monitor the individual's control experiences, as proximal predictors of adaptive outcomes. If objective conditions of control do not lead to experiences of control (e.g., if the individual does not act on them), then even actual control may not produce positive effects. Or if subjective control interferes with control experiences—for example, if the illusion of control leads the person to persevere in objectively uncontrollable circumstances—then subjective control may not always produce positive effects. If, instead, high control leads people to search for aspects of low-control circumstances that are amenable to control and to effectively exert control over these outcomes, it will lead people to experience more control.

Finally, one important conclusion that emerges from this analysis of constructs of control is that many important processes of motivation, engagement, coping, and adaptation are not connected to control per se. Stressful circumstances, such as life-threatening illness, victimization, and aging, are stressful for reasons in addition to the loss of control they entail. Victimization is by definition coercive and therefore is a major assault to self-determination as well as to control. Serious illness curtails activities and may burden loved ones and so may threaten both autonomy and relatedness. It is essential that researchers stop defining all adaptive processes as aspects of control; some may be related to control and others may not. The addition of these non-control-related processes should enrich future research.

In sum, an integrative framework has been suggested that identifies several distinctions that may be central to describing and classifying constructs of control. This article attempted to show how this framework can be useful to the control area, in terms of analyzing and comparing extant constructs, clarifying ostensible inconsistencies and contradictions in the research findings, and suggesting future work. It is hoped that a framework like this is able to bring some order to a dynamic and vital

area of psychology while at the same time preserving its richness and complexity.

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Appendix

Constructs of Control and Their Definitions

Construct	Author	Definition
Accommodative processes	Brandtstaedter and Renner (1990)	"adjusting personal preferences to situational constraints" (p. 58)
Action versus state orientation	Kuhl (1981)	"cognitive activities focusing on action alternatives and plans that serve to overcome a discrepancy between a present state and an intended future one" versus "cognitive activities that focus on the present, past, or future state of the organism" (p. 159)
Action-by-situation-outcome expectancy	H. Heckhausen (1977, 1991)	"the subjective probability that external and variable circumstances will heighten or lessen the action-outcome expectancy" (1991, p. 415)
Action–outcome expectancy	H. Heckhausen (1977, 1991)	"the subjective probability that one's actions will modify a given situation" (1991, p. 415)
Actual control	Chanowitz and Langer (1980)	"the measure of actual control that subjects are given is directly tied to the amount of change the environment allows the subjects to effect" (pp. 114–115) "the regular action of the elements in the experimental and how much they will bend in response to the subject's manipulation" (p. 115)
Agency beliefs	Little, Oettingen, Stetsenko, and Baltes (1994)	"the child's belief that s/he (A) (has access to/can use/can implement) a specific mean (M) to achieve outcome (E)" (p. 46)
Agency beliefs	Skinner, Chapman, and Baltes (1988)	Beliefs about the extent to which an agent possesses or has access to potential means
Assimilative processes	Brandtstaedter and Renner (1990)	"transforming developmental circumstances in accordance with personal preferences" (p. 58)
Behavior control	Fiske and Taylor (1991)	"the ability to take some step to end an aversive event, make it less likely, reduce its intensity, or alter its timing or duration" (p. 198)
Behavioral control	Averill (1973)	"the availability of a response which may directly influence or modify objective characteristics of a threatening event" (pp. 286–287)
Behavioral control	Thompson (1981)	"a belief that one has a behavioral response available that can affect the aversiveness of an event. It could terminate the event, make it less probable, less intense, or change its duration or timing" (p. 90)
Being in control over things	Antonovsky (1979)	"being in control over things" (personal control)
Blame	Brickman et al. (1982)	"when we hold [people] responsible for having created problems" (p. 369) "responsibility for the origin of a problem" (p. 369)
Capacity beliefs	Skinner, Wellborn, and Connell (1990)	Beliefs about the extent to which an agent possesses or has access to potential means
Causal attributions	Weiner (1985)	"perceived causes of successes and failures" (p. 549) Causal categories: effort, task difficulty, ability, luck Causal dimensions: internal, stable, controllable
Causality (means–ends) beliefs	Little et al. (1994)	"general expectations about the utility or causal power of specific causes or means (M) for a given domain-specific outcome (E)" (p. 46)
Central control versus consequence-related control	Thompson, Nanni, and Levine (1994)	"escaping or avoiding the event itself" versus "control over the many consequences of the stressor" (p. 541)
Cognitive control	Averill (1973)	"the way in which an event is interpreted, appraised, or incorporated into a cognitive 'plan' " (p. 287)
Cognitive control	Fiske and Taylor (1991)	"the availability of some cognitive strategy that either leads a person to think differently about an aversive event or focuses the person's attention on non-noxious aspects of the aversive situation" (p. 200)
Cognitive control	Thompson (1981)	"the belief that one has a cognitive strategy available that can affect the aversiveness of an event" (p. 90)
Cognitive control strategies	Burger (1989)	"when people reinterpret events in a way that allows them to believe they have more or less control than before" (pp. 246–247)
Collective efficacy	Bandura (1993)	Judgments about a group's joint power and capability

Appendix (*continued*)

Construct	Author	Definition
Competence	Weisz and Stipek (1982)	"the degree to which one is capable of producing those behavioral variations upon which the desired outcome is contingent" (Weisz, 1983, p. 241)
Contingency	Weisz and Stipek (1982)	"the degree to which the outcome in question is contingent upon (i.e., controllable by means of) variations in the behavior of persons like oneself" (Weisz, 1983, p. 241)
Control	Brickman et al. (1982)	"when we hold [people] responsible for influencing or changing events" (p. 369) "responsibility for the solution of a problem" (p. 369)
Control	Chanowitz and Langer (1980)	"the fluctuating relation between self and material that define each other— more finely etching each other with each involvement" (p. 114)
Control	Glass and Carver (1980)	"The concept of control may be defined in terms of perceptions of contigencies. If a person perceives a contingency between his behaviors and an outcome . . . the outcome is considered controllable. By contrast, if a person believes that his actions do not influence the outcome, the outcome is considered uncontrollable" (p. 232)
Control	Thompson (1981)	"the belief that one has at one's disposal a response that can influence the aversiveness of an event" (p. 89)
Control	Weisz (1986)	"causing an intended event" (p. 221)
Control beliefs	Skinner et al. (1988), Skinner et al. (1990)	Beliefs about the extent to which an agent can produce desired events and prevent undesired events
Control expectancy	Little et al. (1994)	"the child's personal expectation that s/he (A) can achieve a given outcome (E), without reference to any specific means" (p. 46)
Control experience	Skinner (1985, 1996)	"the cumulation of action-outcome episodes that accrue based on an individual's actions in a set of objective control conditions which are interpreted according to his or her subjective control beliefs" (1996, p. 6)
Control ideology	Gurin, Gurin, and Morrison (1978)	"beliefs about the role of internal and external forces in the distribution of rewards in our society" (p. 274)
Control motivation	H. Heckhausen (1991)	"individual differences in the desire to exercise as much control as possible over one's environment" (p. 348)
Control understanding	Skinner and Connell (1986)	"an individual's set of generalized causal models about what produces desired and undesired outcomes in everyday life and about the role of the self in that causal process" (p. 35)
Decision control	Averill (1973)	"the opportunity to choose among various courses of action" (p. 287)
Decision control	Fiske and Taylor (1991)	"the ability to make a decision or decisions with respect to a forthcoming stressful event" (p. 201)
Decision control	Steiner (1970)	"Person's belief that he or she rather than other people or circumstances selects both the goals sought and the means to obtain them" (Rodin, 1990, pp. 5–6)
Decision control	Thibaut and Walker (1975)	"the degree of actual influence over the actual decision made" (Tyler, Rasisnski, & Spodick, 1985, p. 72)
Decisional control	Miller (1979)	"the opportunity to choose among various courses of action" (p. 287)
Desire for control	Burger and Cooper (1979)	Desire to maintain control, make one's own decisions, and be in charge of activities
Effectance	White (1959)	The need or desire "to interact effectively with [the] environment" (p. 329)
Effectiveness	Thompson, Sobolew-Shubin, Galbraith, Schwankovsky, and Cruzen (1993)	"how effective they felt their control efforts were" (p. 296)
Efficacy expectations	Bandura (1977)	"the conviction that one can successfully execute the behavior required to produce the outcome" (p. 193)
Entity versus incremental	Dweck and Leggett (1988)	Perception of an attribute (e.g., intelligence or personality) as a fixed trait over which one has no control as opposed to a malleable quality that one can develop through one's own efforts
Expectancy	Vroom (1964)	Subjective probability that an action will lead to the desired outcome

Appendix (*continued*)

Construct	Author	Definition
Functional versus motivational helplessness	Kuhl (1981)	"generalized performance decrements following exposure to uncontrollable results [due to] deteriorated cognitive functioning caused by an increase in state-oriented cognitions" versus "performance decrements caused by motivational deficits that are attributable to a belief in uncontrollability" (p. 155)
Human control	Weisz (1986)	"those events that can be caused (in full or in part) by at least some people in the intended direction" (p. 221)
Illusion of control	Langer (1975)	"an expectancy of a personal success probability inappropriately higher than the objective probability would warrant" (p. 311)
Illusion of incompetence	Langer (1979)	Inferences that people draw that lead them to give up control
Illusory control	Rothbaum, Weisz, and Snyder (1982)	Primary: "attempt to influence chance-determined outcomes" (p. 12) Secondary: "attempt to associate with chance" (p. 12)
Information	Thompson (1981)	"a communication delivered to a person who is a potential recipient of an aversive event" (p. 91)
Information control	Fiske and Taylor (1991)	"a sense of control that is achieved when the self obtains or is provided with information about a noxious event" (p. 201)
Instrumental control	Miller (1979)	The ability to make a behavioral response that modifies the aversive event
Instrumentality	Vroom (1964)	The degree of the relationship between an action–outcome and its subsequent consequences
Intellectual achievement responsibility	Crandall, Katkovsky, and Crandall (1965)	"the degree to which individuals usually believe that they are able to influence the outcome of situations" (pp. 91–92) Sources of control: effort versus the teacher Events: positive, negative
Interpretative control	Rothbaum et al. (1982)	Primary: "attempt to understand problems so as to be able to solve them or otherwise master them" (p. 12) Secondary: "attempt to understand problems so as to derive meaning from them and accept them" (p. 21)
Learned helplessness	Seligman (1975)	Motivational, cognitive, and emotional deficits due to prolonged exposure to noncontingent events
Learned resourcefulness	Rosenbaum (1983)	"an acquired repertoire of behaviors and skills by which a person self-regulates internal events—such as emotions, pain, and cognitions—that interfere with the smooth execution of behavior" (1983, p. 68)
Locus of control	Rotter (1966)	"When a reinforcement is perceived by the subject as following some action of his own but not being entirely contingent upon his action, then in our culture, it is typically perceived as the result of luck, chance, fate, as under the control of powerful others, or as unpredictable because of the great complexity of forces surrounding him. When the event is interpreted in this way by an individual, we have labeled this a belief in external control. If the person perceives that the event is contingent upon his own behavior or relatively permanent characteristics, we have termed this a belief in internal control" (p. 1)
Locus of control	Lefcourt (1981)	Attributions: effort, ability, task, luck Dimensions: Internal, stable
Locus of control	Levenson (1973)	"generalized expectancy to perceive reinforcement either as contingent upon one's own behaviors . . . or as the result of forces beyond one's control and due to chance fate and powerful others" (Levenson, 1981, p. 15) Categories: internal, powerful others, chance
Mastery versus helplessness	Dweck (1991)	Adaptive persistent pattern of cognitive, affective, and behavioral responses to challenge and failure versus a maladaptive, nonpersistent pattern of responses
Means–ends beliefs	Skinner et al. (1988)	Beliefs about the extent to which certain classes of potential causes are effective in producing desired or preventing undesired outcomes
Mental control	Wenzlaff, Wegner, and Roper (1988)	"directing awareness away from unwanted thoughts" (p. 882)
Mindlessness	Chanowitz and Langer (1980)	Repeated experience with an activity until its performance is automatic and without conscious thought

Appendix (*continued*)

Construct	Author	Definition
Noncontingency	Seligman (1975)	Response–outcome independence. When the probability of an outcome is the same in the presence of a response as it is in the absence of a response
Objective control	Skinner (1985)	"the extent of actual control present as represented by some normatively appropriate assessment of the action-outcome relationship" (pp. 39–40)
Outcome expectation	H. Heckhausen (1991)	Estimate of the likelihood of an outcome
Outcome–consequence expectancy	H. Heckhausen (1977, 1991)	"the degree to which an outcome is instrumental in bringing about a consequence" (1991, p. 415)
Participatory control	Reid (1984)	Collaborating on efforts to exert control with more powerful others, who are responsive to the self
Perceived control	Burger (1989)	"the perceived ability to significantly alter events" (p. 246)
Perceived control	Rodin (1990)	"the expectation of having the power to participate in making decisions in order to obtain desirable consequences and a sense of personal competence in a given situation" (p. 4)
Perceived control	Skinner (1995)	"naive causal models of how the world works: about the likely causes of desired and undesired events, about their own role in successes and failures, about the responsiveness of other people, institutions, and social systems" (pp. xvi–xvii)
Perceived controllability of the environment	Bandura (1993)	"the modifiability of the environment. This facet represents the constraints and opportunities provided by the environment to exercise personal efficacy" (p. 125)
Perception of control	Steitz (1979)	"individuals' social perceptions of select life situations in terms of locus of control . . . within the situation and the corresponding personal ability to accommodate or exert influence on the control in the situation" (p. 392)
Perceptions of control	Connell (1985)	a child's understanding of why he/she and other children succeed or fail in particular domains of their everyday life Sources of control: internal, powerful others, unknown Realm of reference: personal, maxim
Performance versus learning goals	Dweck and Elliott (1983)	Goals in which "the aim is to gain favorable judgments of [one's] competence and to avoid unfavorable ones" versus "to increase [one's] competence by, for example, learning something new or mastering a new task" (Dweck, 1991, p. 203)
Personal causation Locus of causality	DeCharms (1968)	"Man strives to be a causal agent, to be the primary locus of causation for, or the origin of, his behavior; he strives for personal causation" (p. 269)
Personal control	Gurin et al. (1978)	"individuals' beliefs about their capacities to exercise control in their own lives" (p. 275)
Personal efficacy	Gurin and Brim (1984)	"judgments of the self as able to produce acts that should lead to desirable outcomes" (p. 285)
Personal helplessness	Abramson et al. (1978)	"cases in which an individual lacks requisite controlling responses that are available to other people" (p. 51)
Potential control	Miller (1980)	"Individuals . . . believe that some controlling response is available to them but they refrain from using it" (p. 74)
Power motive	Winter (1973)	"the extent to which people want power, or strive to affect the behavior of others according to their own intentions" (p. 5)
Predictive control	Rothbaum et al. (1982)	Primary: "attempt to predict events so as to succeed at them" (p. 12) Secondary: "attempt to predict events so as to avoid disappointment" (p. 12)
Primary control	J. Heckhausen and Schulz (1995)	"bringing the environment into line with one's wishes . . . targets the external world and attempts to achieve effects in the immediate environment external to the individual" (p. 285)
Primary control	Rothbaum et al. (1982)	"attempts to change the world so that it fits in with the self's needs" (p. 8)
Probability of success	H. Heckhausen (1991)	Likelihood of the occurrence of a desired outcome
Process control	Thibaut and Walker (1975)	"the degree to which the procedure gives those affected by a decision the opportunity to express their views about how the decision should be made" (Tyler et al., 1985, p. 72)

Appendix (*continued*)

Construct	Author	Definition
Proxy control	Bandura (1986)	Delegation of control to more efficacious others
Reactance	Brehm (1966)	An individual is motivated to feel "that he can do what he wants, that he does not have to do what he doesn't want, and . . . that he is the sole director of his own behavior" (Brehm, 1966, p. 9; Wortman & Brehm, 1975)
Relinquishment of control	Miller (1980)	Voluntarily yielding control to another person (p. 88)
Relinquishment of control	Rothbaum et al. (1982)	Perceived uncontrollability and the abandonment of motivation for control
Response–outcome expectations	Bandura (1977)	"a person's estimate that a given behavior will lead to certain outcomes" (p. 193)
Retrospective control	Thompson (1981)	"beliefs about the causes of a past event" and "attributions about the cause of the event once it has happened" (p. 91)
Secondary control	Rothbaum et al. (1982)	"attempts to fit in with the world and to 'flow with the current' " (p. 8)
Secondary control	J. Heckhausen and Schulz (1995)	"bringing the self in line with the environment . . . targets the self and attempts to bring changes directly within the individual" (p. 285)
Self-administration	Miller (1979)	Self-delivery of an aversive event
Self-determination	Deci and Ryan (1985)	"a quality of human functioning that involves the experience of choice" and "the capacity to choose and to have those choices . . . be the determinants of one's actions" (p. 38)
Self-efficacy beliefs	Bandura (1989)	"people's beliefs about their capabilities to exercise control over events that affect their lives" (p. 1175)
Sense of control	Abeles (1991)	"people's interrelated beliefs and expectancies about their abilities to perform behaviors aimed at obtaining desired outcomes and about the responsiveness of the environment, both physical and social, to their behaviors" (p. 298)
Sense of control	Brim (1974)	"One's sense of personal control is in fact a system of belief, i.e., a theory about oneself in relation to one's environment, and a concern with causality, whether outcomes are a consequence of one's own behavior or tend to occur independently of that behavior" (p. 243)
Sense of control	Lefcourt (1973)	"the illusion that one can exercise personal choice" (p. 424)
Situation–outcome expectancy	H. Heckhausen (1977, 1991)	"the subjective probability with which the current situation will lead to a future outcome state without action" (1991, p. 415)
Strategy beliefs	Skinner et al. (1988)	Beliefs about the extent to which certain classes of potential causes are effective in producing desired outcomes or preventing undesired outcomes for the self
Subjective control	Skinner (1985)	"the amount of control perceived by the individual" (p. 40)
System responsiveness	Gurin and Brim (1984)	"judgments of the environment's likely response to an individual's action" (p. 285)
Things being under control	Antonovsky (1979)	Powerful others acting on one's behalf when they have legitimate power and act in one's interest strong trust in legitimate others as well as in oneself
Universal helplessness	Abramson et al. (1978)	"cases in which the individual as well as other individuals do not possess controlling responses" (p. 51)
Vicarious control	Rothbaum et al. (1982)	Primary: "attempt to manipulate powerful others or imitate their power or ability" (p. 12) Secondary: "attempt to associate with powerful others" (p. 12)
Vicarious control	Taylor, Hegelson, Reed, and Skokan (1991)	"the belief that others have some response that can reduce, modify, or terminate an aversive situation that affects the self" (p. 94)