Handbook of Personality and Self-Regulation

Edited by

Rick H. Hoyle

WILEY-BLACKWELL

A John Wiley & Sons, Ltd., Publication

Handbook of Personality and Self-Regulation

Handbook of Personality and Self-Regulation

Edited by

Rick H. Hoyle

⊕WILEY-BLACKWELL

A John Wiley & Sons, Ltd., Publication

Wiley also publishes its books in a variety of electronic formats. Some content that appears in print may not be available in electronic books.

Designations used by companies to distinguish their products are often claimed as trademarks. All brand names and product names used in this book are trade names, service marks, trademarks or registered trademarks of their respective owners. The publisher is not associated with any product or vendor mentioned in this book. This publication is designed to provide accurate and authoritative information in regard to the subject matter covered. It is sold on the understanding that the publisher is not engaged in rendering professional services. If professional advice or other expert assistance is required, the services of a competent professional should be sought.

Contents

About the Editor

Rick H. Hoyle, PhD, is Professor of Psychology and Neuroscience at Duke University. He is a Fellow of the American Psychological Association (Divisions 5, Evaluation, Measurement, and Statistics, and 9, Society for the Psychological Study of Social Issues) and a Fellow and Charter Member of the Association for Psychological Science. Dr Hoyle has served as Associate Editor of the *Journal of Personality and Social Psychology*, *Journal of Personality*, and *Self and Identity*, and Editor of *Journal of Social Issues*. Among his book projects are, *Selfhood: Identity, Esteem, Regulation* (coauthored with Michael Kernis, Mark Leary, and Mark Baldwin) and the *Handbook of Individual Differences in Social Behavior* (coedited with Mark Leary).

List of Contributors

Claire E. Adams, Department of Psychology, Louisiana State University, Baton Rouge

Roy F. Baumeister, Department of Psychology, Florida State University, Tallahassee

Clancy Blair, Department of Applied Psychology, New York University

Erin K. Bradfield, Department of Psychology and Neuroscience, Duke University, Durham, NC

Aleah Burson, Department of Psychology, University of Michigan, Ann Arbor

Susan Calkins, Department of Psychology, University of North Carolina at Greensboro

Jennifer Crocker, Department of Psychology, University of Michigan, Ann Arbor

Edward L. Deci, Department of Clinical and Social Psychology, University of Rochester, NY

C. Nathan DeWall, Department of Psychology, University of Kentucky, Lexington

Alison Edwards, Department of Psychology, Arizona State University, Tempe

Natalie D. Eggum, Department of Psychology, Arizona State University, Tempe

Nancy Eisenberg, Department of Psychology, Arizona State University, Tempe

Randall W. Engle, School of Psychology, Georgia Institute of Technology, Atlanta

Nathan A. Fox, Department of Human Development, University of Maryland, College Park

Matthew T. Gailliot, Department of Social Psychology, University of Amsterdam

William G. Graziano, Department of Psychological Sciences, Purdue University, West Lafayette, IN

James J. Gross, Department of Psychology, Stanford University, CA

E. Tory Higgins, Department of Psychology, Columbia University, New York

Stephan Horvath, Institute of Psychology, University of Bern

Rick H. Hoyle, Department of Psychology and Neuroscience, Duke University, Durham, NC

Malgorzata Ilkowska, School of Psychology, Georgia Institute of Technology, Atlanta

Nils B. Jostmann, Department of Social Psychology, Vrije Universiteit Amsterdam

Paul Karoly, Department of Psychology, Arizona State University, Tempe

Sander L. Koole, Department of Social Psychology, Vrije Universiteit Amsterdam

Lisa Kopp, Department of Human Development and Family Studies, Pennsylvania State University, University Park

Arie W. Kruglanski, Department of Psychology, University of Maryland, College Park

Mark R. Leary, Department of Psychology and Neuroscience, Duke University, Durham, NC

Corinna E. Löckenhoff, Department of Human Development, Cornell University, Ithaca, NY

James E. Maddux, Department of Psychology, George Mason University, Fairfax, VA

Eran Magen, Robert Wood Johnson Health and Society Scholars Program, University of Pennsylvania

Robert R. McCrae, Baltimore, MD

Jennifer M. McDermott, Department of Human Development, University of Maryland, College Park

Scott Moeller, Department of Psychology, University of Michigan, Ann Arbor

Carolyn C. Morf, Institute of Psychology, University of Bern

Christopher P. Niemiec, Department of Clinical and Social Psychology, University of Rochester, NY

Edward Orehek, Department of Psychology, University of Maryland, College Park

Antonio Pierro, Department of Social and Developmental Psychology, University of Rome "La Sapienza"

Richard M. Ryan, Department of Clinical and Social Psychology, University of Rochester, NY

Julie Sallquist, Department of Psychology, Arizona State University, Tempe

Carol Sansone, Department of Psychology, University of Utah, Park City

Abigail A. Scholer, Department of Psychology, Columbia University, New York

David R. Schurtz, Department of Psychology, University of Kentucky, Lexington

Idit Shalev, Department of Psychiatry, University of Florida, Gainesville

Jessi L. Smith, Department of Psychology, Montana State University, Bozeman

Timothy J. Strauman, Department of Psychology and Neuroscience, Duke University, Durham, NC

Eleanor B. Tate, Department of Psychology and Neuroscience, Duke University, Durham, NC

Dustin B. Thoman, Department of Psychology, University of Utah, Park City

Renée M. Tobin, Department of Psychology, Illinois State University, Normal

Michelle R. vanDellen, Department of Psychology, University of Georgia, Athens

Jeffrey Volkmann, Department of Psychology, George Mason University, Fairfax, VA

Wilkie A. Wilson, Department of Medicine, Duke University Medical Center, Durham, NC

Preface

It is perhaps not surprising that self-regulation and related constructs began moving toward center stage in psychological science in the 1990s. The increased attention coincided with emerging evidence that Americans were beginning to realize the consequences of the excesses of the 1980s. For instance, US consumers' revolving credit debt, which stood at $54 billion in the late 1970s, had risen to more than $600 billion by the end of the 1990s; it now approaches $1 trillion. Whereas in 1990 no US state had a prevalence rate above 15% for obesity, by 2007 only one state had a prevalence rate less than 20%, and 30 states had a prevalence rate of 25% or more. The Centers for Disease Control and Prevention reported that in 2000, obesity, physical inactivity, and tobacco use accounted for more than one-third of all deaths in the US. Another 8% of deaths were attributable to a cluster of behavioral causes—alcohol consumption, motor vehicle crashes, incidents involving firearms, sexual behaviors, and use of illicit drugs—principally characterized by inadequate self-regulation. As this book is going to press, millions of Americans are reeling in the face of an economic crisis attributable in part to excessive borrowing and lending and high-risk investments made with little or no concern for potential long-term consequences. As the costs of these unregulated behaviors mount, psychological scientists have reacted by drawing attention to the causes and consequences of inadequate self-regulation and means by which self-regulation might be improved.

The goal of this handbook is to showcase some of the best psychological science on self-regulation, with a specific focus on programs of research that examine self-regulation in the context of normal personality. Each chapter integrates empirical findings on one or more basic personality traits with findings inspired by emerging models of self-regulation. The focus is *programs* of research; thus, each chapter reviews multiple research studies, sometimes carried out over decades, by the authors. Although

findings from most of these studies have been published previously, their value is increased through inclusion in integrative accounts that focus on themes across multiple studies and perhaps highlight implications of the findings that were not apparent when originally published.

The primary audience for the book is social and behavioral scientists with an interest in dynamic models of personality and self-regulation. Many of the chapters present findings from research conducted in settings or with populations that are of potential value to practitioners (e.g., counseling and clinical psychologists, psychiatric social workers, financial advisors) who serve individuals who could benefit from more effective self-regulation. Because of the relevance of self-regulation to discussions of the broader, more philosophical question of how a society regulates the behavior of its members, this handbook might also be of interest to some sociologists, economists, political scientists, and philosophers.

A subset of the chapters in this handbook began as articles in a special issue of *Journal of Personality* on personality and self-regulation (Volume 74, Issue 6, December 2006). The number and length of contributions in that outlet were necessarily restricted. It became apparent early in the process of editing that special issue that there were more contributors than an issue of the journal could accommodate, and that contributors had more to say than page limits would allow. A subset of the authors whose contribution initially appeared in that special issue were invited to expand and update their journal article to be included as a chapter in this handbook. To this core set of contributions were added chapters that address temperament, as well as chapters that extend the range of personality traits and individual differences represented in the special issue of *Journal of Personality*.

This handbook is organized in three parts. In Part I, the chapters focus on the emergence of aspects of temperament and personality relevant to self-regulation. Chapters in Part II provide accounts of self-regulation as it influences and is influenced by basic personality processes in normal adults. Part III is the largest, comprising 10 of the 21 chapters. Chapters in this part focus on individual differences that contribute to or reflect variability in the components, styles, and effectiveness of self-regulation. Collectively, these contributions offer a rich account of the state of the science in research on personality and self-regulation.

Acknowledgments

Producing a book, even one for which the bulk of the content is provided by talented contributing authors, is a substantial undertaking and is rarely accomplished without the support of talented professionals. This handbook is no exception. I owe a debt of gratitude to Howard Tennen (University of Connecticut), long-time editor of *Journal of Personality*, who supported my guest editorship of a special issue of that journal on personality and self-regulation and encouraged me to expand that set of journal

articles into this handbook. Christine Cardone, executive editor of psychology books for Wiley-Blackwell, facilitated the transition from journal to handbook editor and offered guidance and encouragement from beginning to end. Grazyna Kochanska (University of Iowa) helped identify potential contributors for the first section of the book. The structure and content of the book benefit from input at the proposal stage from Brent Roberts (University of Illinois), Constantine Sedikides (University of Southampton), James Shepperd (University of Florida), and Howard Tennen (University of Connecticut Health Center). Contributing authors helped strengthen the book as a whole by reviewing and providing feedback on drafts of other contributors' chapters. Constance Adler, editorial assistant for Wiley-Blackwell, helped move the manuscript through the publication process. Finally, as with all my projects, scholarly and otherwise, I benefited from the encouragement and support of my wife, Lydia, and my children, Matthew, Michael, and Jessica.

Rick H. Hoyle
Duke University

1

Personality and Self-Regulation

Rick H. Hoyle*

Because people are not in complete control of the physical and social environments they encounter in daily life, it is inevitable that discrepancies arise between what their identities, goals, and preferences lead them to expect or desire in specific situations and what transpires in those situations. People generally find such discrepancies at least mildly and temporarily unsettling, because they call into question their understanding of how the world works (or could work) or their understanding of their own goals, motives, or behavior. When these discrepancies arise, they generally are met with swift and decisive actions aimed at aligning expectations or desires and reality. These actions, collectively referred to as self-regulation, are the natural, often automatic response of healthy individuals to salient discrepancies between expectation and reality as they perceive it. They may involve cognition or behavior, and almost always are attended by affect.

Effective self-regulation is the bedrock of healthy psychological functioning. People who routinely are successful at self-regulation benefit from a sense of psychological stability and personal control that allows them to manage their perceptions of themselves and how they are perceived by others. Their behavior typically reflects salient goals and adopted standards of behavior. Departures from these desired states are handled smoothly and effectively. People who routinely fail at self-regulation enjoy none of the psychological benefits that derive from a sense of psychological stability and control and struggle with mild to severe forms of psychopathology. Effective self-regulation, by which people control their thoughts, feelings, and behaviors, is essential for adaptive functioning.

The recognition that self-regulation is of central importance in adaptive functioning has inspired a large literature on the antecedents, correlates, and consequences of

effective and ineffective self-regulation. Contributors to this literature represent the full range of subdisciplines within psychological science as well as other disciplines concerned with human behavior (e.g., sociology, education). In the psychological sciences, different perspectives and streams of research on self-regulation have been showcased in a number of edited volumes published within the last decade (e.g., Baumeister & Vohs, 2004; Boekaerts, Pintrich, & Zeidner, 2000; Cameron & Leventhal, 2003; de Ridder & de Wit, 2006; Heckhausen & Dweck, 1998).

Despite the impressive size and breadth of the literature on self-regulation in psychological science and related disciplines, relatively little research or theorizing (especially in the adult literature) has targeted the intersection of self-regulation and personality processes. As such, research on personality structure and process rarely reflects the rich detail of models of self-regulatory processes, and research on the self-regulatory processes rarely addresses the fact that some portion of those processes is a reflection of stable tendencies of individuals. The primary aim of this handbook is to bridge the personality and process-oriented literatures on self-regulation by showcasing programs of research that draw from and speak to both perspectives.

In this opening chapter, I begin by discussing personality and information-processing perspectives on self-regulation. Next, I describe ways in which the personality and information-processing perspectives might be integrated. These range from methodological approaches, in which constructs representing the two perspectives are examined through integrated data-analytic strategies, to conceptual approaches, in which the two perspectives are unified in a holistic theoretical model of self-regulation. In the final section of the chapter, I preview the individual contributions that constitute the remainder of the handbook, which is organized in three conceptually coherent but overlapping parts: the emergence and early expression of variability in self-regulation; self-regulation as a process that plays out in the context of normal adult personality; and individual differences in the components, styles, and effectiveness of self-regulation.

Temperament and Personality Perspectives

The characteristic means by which people self-regulate and the routine success or failure they experience are reflected in personality traits. Many of these traits are rooted in temperament, which manifests early in life. Despite the obvious continuity between temperament and personality, the literatures on these two manifestations of personhood are relatively distinct; thus, they are summarized separately in this section.

Temperament Constructs

The basic elements of the self-system and the capacity to self-regulate begin to emerge early in life. For example, variation in the ability to inhibit behavior stabilizes

by about one year of age (Kagan, 1997). The ego—the psychological structure and processes through which people relate to their social and physical environment—undergoes differentiation and change as young children mature (Loevinger, 1976). In terms of self-regulation, the developing individual becomes increasingly more able to delay gratification and increasingly less prone to act impulsively or in response to external pressure (Hy & Loevinger, 1996). With the emergence of self-awareness and internalized standards of behavior comes the capacity to self-regulate.

A temperament construct with clear implications for self-regulation is effortful control, defined as the "ability to inhibit a dominant response to perform a subdominant response, to detect errors, and to engage in planning" (Rothbart & Rueda, 2005, p. 169). Although specific constructs and labels vary across models of temperament, most include two broad factors that reflect the tendency toward a dominant response of approach or avoidance. Through the exercise of effortful control, children are able to inhibit these dominant responses when they would conflict with an activity in which they are engaged. Individual differences in effortful control begin to emerge by two years of age and by four years of age are temporally stable (Kochanska, Murray, & Harlan, 2000). Effortful control is a precursor to the constraint dimension in adult models of personality.

A related temperament construct is behavioral inhibition, which focuses on variation in children's reactions to unfamiliar or unexpected stimuli. In the presence of such stimuli, children as young as one year of age who are behaviorally inhibited exhibit stress and behavioral restraint. The neurophysiology of behavioral inhibition indicates overactivity in brain regions associated with fear (Fox, Henderson, Marshall, Nichols, & Ghera, 2005). Thus behaviorally inhibited children are faced with the regulatory challenge of managing fear and anxiety in the face of the unexpected. Because a stimulus for self-regulation is unexpected feedback from the environment (Duval & Wicklund, 1972), behaviorally inhibited individuals face the challenge of managing such feedback while also managing the fear and anxiety such stimuli invoke.

These and other temperament constructs influence the emergence and development of self-regulation and underlie personality traits relevant to adult self-regulation. Although a large number of personality traits have some relevance for adult self-regulation, those that follow most clearly from temperament and are most likely to appear in major models of personality can be grouped under the general headings of conscientiousness and impulsivity.

Conscientiousness and Related Constructs

Among the higher-order dimensions of personality, conscientiousness is the most clearly relevant for self-regulation. Although defined somewhat differently in lexical and psychometric models, conscientiousness generally concerns the ways in which people characteristically manage their behavior. People who are high on conscientiousness

are confident, disciplined, orderly, and planful, whereas people who are low on conscientiousness are not confident in their ability to control their behavior, and are spontaneous, distractible, and prone to procrastinate (Costa & McCrae, 1992). In research linking conscientiousness to behavior, the more narrowly focused facets underlying the domain are emphasized (Paunonen & Ashton, 2001). The facets—competence/self-efficacy, orderliness, dutifulness, achievement striving, self-discipline, and deliberation/cautiousness—reflect different behavioral tendencies characteristic of successful self-regulation (Roberts, Chernyshenko, Stark, & Goldberg, 2005).

A related higher-order dimension of personality is constraint, which reflects well the temperament trait of behavioral inhibition (Tellegen, 1982). Facets of constraint focus on the tendency to inhibit the expression of impulse and emotion (control), behavior at odds with social convention (traditionalism), and risk taking (harm avoidance). As with conscientiousness, in research on self-regulation constraint is best considered in terms of its facets.

Impulsivity and Related Constructs

As a trait, impulsivity is the tendency to act without thought or planning. It is evident in early childhood (Clark, 1993) and has a strong neurobiological signature (Spinella, 2004). Impulsive behaviors typically are quick, often inappropriate, and frequently risky. People who are highly impulsive are prone to a host of high-risk behaviors characterized by poor self-control (e.g., Hoyle, Fejfar, & Miller, 2000; Krueger, Caspi, Moffitt, White, & Slouthamer-Loeber, 1996; Wulfert, Block, Ana, Rodriguez, & Colsman, 2002). Although impulsivity can be assessed, and often is studied, as a trait, it also appears as a constituent of broader traits and domains of personality such as extraversion and psychoticism in the P-E-N model (Psychoticism, Extraversion, and Neuroticism; Eysenck, 1990), conscientiousness in the five-factor model (Costa & McCrae, 1992), impulsive sensation seeking in the alternative five-factor model (Zuckerman, Kuhlman, Joireman, Teta, & Kraft, 1993), and the behavioral approach system in Gray's (1994) neurophysiological model. Impulsivity typically is cast as a behavioral liability; however, in conditions that do not allow for forethought or planning, impulsivity can be an asset (Dickman, 1990). In either case, behavior is not consciously regulated by the individual, and therefore the process models described below routinely do not apply.

The idea that self-control is not always adaptive is apparent in the ego control construct (Block & Block, 1980). Ego control is defined as the "expression or containment of impulses and desires" (Letzringa, Block, & Funder, 2004). An important feature of this conceptual model is the notion that individuals can be overcontrolled as well as undercontrolled. Individuals who are undercontrolled do not suppress emotional expression and behavior even when so doing would violate personal or social standards of appropriateness. In terms of self-regulation, they do not exercise self-denial, are emotionally unstable, and are easily distracted. Individuals who are overcontrolled

excessively inhibit emotional expression and behavior. In terms of self-regulation, they are rigidly organized, likely to exercise self-denial when it is not necessary to do so, and persist at tasks when it is no longer productive to do so. According to the model, although the self-regulatory styles of undercontrolled and overcontrolled people ordinarily are maladaptive, under certain conditions they are advantageous. For instance, the self-discipline and persistence characteristic of overcontrolled people would be beneficial when productivity under pressure is required. The spontaneity and emotional expressiveness of undercontrolled people would play well in many social settings. On average, however, a measured degree of ego control results in the most adaptive self-regulation.

Related to impulsivity and ego control is the construct of disinhibition, the inability to control demands on attention, cognition, and behavior that interfere with desired behavior. Specifically, disinhibition involves an inability to prevent interference from competing stimuli, irrelevant thoughts or demands on attention, and reflexive and automatic behaviors. Alternatively, disinhibition can be viewed as a failure of the behavioral inhibition system, which evaluates the relevance of stimuli in terms of what is expected given the situation, responds to inhibitory signals associated with stimuli that are unexpected, and motivates behavior aimed at reducing the influence of those stimuli on cognition, motivation, and behavior (Gray, 1991). In terms of self-regulation, people high in disinhibition are likely to struggle to stay on track in the pursuit of important goals or outcomes.

This selective review of temperament and personality constructs relevant to self-regulation suggests how, and to some extent why, people vary in terms of how they self-regulate, how often they self-regulate, and the degree of success or failure at self-regulation they routinely experience. The personality perspective on self-regulation, exemplified by these constructs, suggests underlying neurophysiological influences and positions self-regulation in the broader context of differences in temperament and personality. With rare exception, however, the personality perspective provides little insight into the cognitive, affective, and behavioral processes that define a specific instance of self-regulation.

Information-Processing Perspective

An alternative perspective on self-regulation focuses on the specific processes by which information about the self is processed and the implications of that processing for motivation and behavior. The original model of this type, which is prototypic of models that take this perspective, was described within objective self-awareness theory (Duval & Wicklund, 1972). According to the theory, when attention is directed toward the self an evaluation ensues in which current self-representation is compared against internalized standards of correctness as reflected in an ideal self-representation.

This comparison yields affect, typically negative affect stemming from the unfavorable discrepancy between current and ideal self-representations. The negative affect motivates behavior aimed at reducing the discrepancy, either through behavior designed to change current self-representation to more closely approximate ideal self-representation or to direct attention away from the self. Characteristics of this conceptualization that are apparent in other information-processing models of self-regulation include self-awareness, comparison of current self-representation with a behavioral standard, and the management of any unfavorable discrepancy between self-representation and the standard (e.g., Carver & Scheier, 1981; Higgins, 1987; Pyszczynski & Greenberg, 1987). In these models, self-regulation has succeeded when self-representation and the salient behavioral standard are reconciled and attention shifts from the self back to the environment.

Related models offer greater detail in terms of the process and its components. Perhaps the most influential of these models is the control-process model of self-regulation (Carver & Scheier, 1981). This model places less emphasis on self-awareness and negative affect and greater emphasis on sources of behavioral standards and the process by which the discrepancy between those standards and current self-representation are managed. Embellishments to the model focus on the awareness of the rate at which discrepancies are reduced and the implications of this awareness for affect (Carver & Scheier, 1990). Self-discrepancy theory focuses more specifically on sources of behavioral standards, distinguishing between ideal and ought self-representations and detailing the emotions that arise when each is contrasted with current self-representation (Higgins, 1987). As a group, these models offer a rich and detailed account of what people are doing and feeling when they are self-regulating.

Fundamental to these models is the assumption that self-regulation is conscious and effortful. The assumption of consciousness is particularly evident in models that accord self-awareness a central role in the process (e.g., Duval & Wicklund, 1972). The assumption of effort is evident in that all of the models assume an unsatisfactory state that typically is overcome through cognitive or behavioral strategies. This assumption is underscored and, to some extent, validated by accumulating evidence that people are less effective at self-regulation when their ability to expend effort on it has been compromised (Muraven & Baumeister, 2000).

The extent to which these assumptions are, in fact, fundamental has been called into question by a growing body of evidence indicating that some portion of people's goal-oriented behavior is nonconscious and automatic (Bargh & Williams, 2006). Moreover, the influence of goals activated outside of consciousness on behavior may equal the influence of goals activated in a conscious manner (Bargh, Gollwitzer, Lee-Chai, Barndollar, & Troetschel, 2001). Whether the process initiated by nonconscious activation is similar to the conscious process described earlier is unclear. Furthermore, it is not clear whether activation of all behavioral standards would initiate nonconscious self-regulation, or whether goals are unique in this regard. Nonetheless, it is evident that, at least some of the time, the regulation of behavior requires neither consciousness nor effort.

Models of self-regulation in the information-processing tradition address important concerns regarding what the process of self-regulation entails. They describe stimuli that initiate the process, components of the process, how the process unfolds, and, ultimately, the conditions that cause the process to terminate. Although the information-processing perspective offers a detailed account of the process of self-regulation, it offers little in the way of explaining the developmental origins of this process and variation across people in the characteristic ways the process unfolds.

Integrating the Perspectives

Although the personality and information-processing perspectives on self-regulation have yielded important empirical and theoretical advances, each offers only a partial explanation of self-regulation. Personality accounts are generally decontextualized, and processing accounts generally ignore fundamental differences between people. A fuller account of self-regulation would be provided by an integration of these complementary perspectives. Elsewhere, I have presented a general framework for integrating trait and process variables in the study of behavior (Hoyle, 2000). In the remainder of this section I draw on that framework to suggest three ways in which the personality and information-processing perspectives on self-regulation could be integrated.

Distal–Proximal Approach

One means of integrating the personality and information-processing approaches focuses on the causal order of their influence on behavior. In this approach the initial focus is a personality–behavior association. Because personality traits are pre-existing characteristics of individuals, the assumption of this approach is that the influence of personality on a specific instance of behavior unfolds in a situated process. In such a model, personality traits are distal influences that operate on behavior through a proximal, online process. Research that exemplifies this approach is rare within the self-regulation literature (for an example, see Tobin, Graziano, Vanman, & Tassinary, 2000). To some extent, this relative lack of distal–proximal research is not surprising because of how studies inspired by the personality and information-processing perspectives typically are done. Research from the trait perspective typically relies on unsituated measurement of traits and summary measures of behavior. Research from the information-processing perspective typically concerns specific instances of a specific behavior in a controlled setting. Investigators working from the information-processing perspective are best situated to integrate perspectives using this approach, needing only to measure relevant traits, preferably before and in a different setting from the controlled setting in which processing and behavior are observed.

Conditional Influence Approach

An alternative means of integrating the two approaches is to examine self-regulatory processing at different levels of temperament or personality traits. For such studies to be successful, neither the self-regulatory process nor the trait on which it is conditioned need to have previously been linked to the behavior. Indeed, it is possible that the consideration of a link between self-regulation and behavior at different levels of a personality trait would reveal an association not evident when the link is evaluated in an unconditional model. In this integrative approach, the effect of the personality trait on the behavior is not of primary interest; thus, traits need not belong to the category of personality traits directly relevant to self-regulation (although frequently they will). An example of such a trait is self-monitoring. Individuals high in self-monitoring are more likely to experience public self-awareness and reference social standards, whereas individuals low in self-monitoring are more likely to experience private self-awareness and reference personal standards (Hoyle & Sowards, 1993). Thus key aspects of the self-regulatory process are conditional on self-monitoring. The implementation of research consistent with this approach would not differ from the implementation of research consistent with the distal–proximal approach. The two approaches differ in terms of the assumed relation between personality and process—causal in the distal–proximal model, no relation assumed in the conditional model—and the assumed relation between personality, process, and the behavior—both personality and process causally related to behavior in the distal–proximal model, no relation between personality and behavior assumed in the conditional model.

Conceptually Integrated Approach

In the distal–proximal and conditional approaches to integrating the personality and information-processing perspectives on self-regulation, the constructs and processes are separately measured or operationally defined, then integrated in the statistical modeling of the data. A more profound integration would be conceptual models that simultaneously implicate personality traits and information processing in such a way that each accounts for the other. At the personality level, such efforts have been attempted for impulsivity (Carver, 2005), narcissism (Morf & Rhodewalt, 2001), and self-monitoring (Hoyle & Sowards, 1993). Dynamic models of personality (e.g., Mischel, 2004), which define personality as invariance in situated emotion, thought, and behavior, hold promise for a broader integration of the personality and information-processing perspectives (see also Cervone, 2004; Morf, 2006). The development of such models for self-regulation requires the thoughtful integration of temperament or personality and information-processing constructs in such a way that personality can be understood in terms of process and processes can be understood as expressions of personality.

Overview of the Handbook

Chapters in Part I of the handbook explore the emergence and development of the capacity for self-regulation during infancy and early childhood. In Part II, chapters present conceptual models and empirical findings relevant to the integration of basic personality processes and self-regulatory processes in normal adults. The final set of chapters, in Part III, focuses on a range of individual differences that distinguish styles of regulation and their relative effectiveness in the course of everyday life.

Temperament and Early Personality

Eisenberg, Eggum, Vaughan, and Edwards open Part I with a chapter on the temperamental bases of self-regulation. They present key findings from an impressive program of research that spans more than 15 years. They describe a multifaceted model of effortful control—an aspect of temperament—and discuss the association of the facets of effortful control with internalizing and externalizing behavior and with emotionality in toddlers and young children. They compare these relations with those involving reactive control, which differs from effortful control in that it is relatively automatic. This distinction between voluntary and involuntary control processes highlights a useful distinction that has had only a modest influence on models of self-regulation in adulthood (cf. Bargh & Chartrand, 1999). Eisenberg et al. close by pointing out the need for more precise measures of the components of temperament relevant for self-regulation that would facilitate research on causal processes in the relations they have observed as well as studies of the relations between the components as they change with age.

A landmark study in the literature on self-regulation during childhood is Mischel's (1958) experimental study of preference when given a choice between an immediate, but relatively small, reward versus a delayed, but relatively larger, reward. The seminal study showed that young children are increasing able to delay gratification by choosing the larger reward despite the temptation of an immediate reward. Tobin and Graziano review 50 years of research building on this finding. They organize the sprawling literature on delay of gratification using a rubric that both reveals the lack of coherence of this literature and sets the stage for a proposed new model of the processes at play in delay of gratification. Their model is integrative and well-grounded in basic research on perception, valuation, and decision making, setting the stage for a new generation of research on a prototypic instance of self-regulated behavior.

Blair, Calkins, and Kopp examine the relation between self-regulation in young children and their early performance in school. They focus on the role of early biological functioning as it affects executive functioning in the development of effective strategies for managing behavior and emotions. Blair et al. note that, although the components of self-regulation were not routinely assessed in evaluations of preschool programs, it

is likely that the positive effects of those programs on adjustment and well-being can be attributed to their contribution to the development of adequate self-regulatory skills and strategies. They highlight findings from recent evaluations of a new preschool program that indicate clear effects on executive functioning and self-control. Their analysis provides strong support for early interventions that attend to biological functions that serve as a foundation for effective self-regulation in the academic context.

The final chapter in Part I, contributed by McDermott and Fox, concerns the role of response monitoring in self-regulation. Consistent with the analysis by Blair et al., these authors draw attention to the underlying neurobiology as it develops during early childhood. Building on findings from imaging, physiological, and behavioral studies of response monitoring and related constructs, the authors make a strong case for focusing on response monitoring in evaluations of effectiveness at self-regulation and attempts to improve self-regulation. Their analysis concludes by relating response monitoring to aspects of temperament and showing that whether response monitoring is adaptive depends on where young children stand on temperamental traits such as fearfulness.

Personality Processes

Morf and Horvath fittingly open Part II, which focuses on personality processes, by discussing a model that integrates the trait and information-processing perspectives on self-regulation within a general, dynamic personality framework. They define personality as the individual's unique approach to constructing and maintaining self-representations through intrapsychic and, mostly, interpersonal self-regulatory processes. A core component of their model is the regularity in contingencies between situations and individuals' responses to them, which give rise to "signatures of the self." They illustrate the dynamic components of their model by selectively applying it to personality traits such as rejection sensitivity and narcissism. Morf and Horvath's chapter sets the stage for the remainder of Part II by demonstrating the conceptual integration of trait and information processing perspectives on self-regulation in a coherent, dynamic model of personality.

Whereas Morf and Horvath describe a model in which personality emerges from patterns of situated self-regulation, McCrae and Löckenhoff begin with the dominant model of personality, the five-factor model, and locate characteristic patterns of self-regulation within it. Specifically, the authors draw on five-factor theory to provide an account of how individual differences in self-regulation emerge from basic aspects of personality. By influencing the behavioral standards that guide self-regulation, affective reactions during self-regulation, and mechanisms by which experience is reconciled with standards, a person's standing on the five principal personality factors and their constituents define the psychological context within which self-regulation takes place. Like Morf and Horvath, McCrae and Löckenhoff persuasively argue that personality and self-regulation are entwined. A fundamental difference between the two accounts is the question of which gives rise to the other. Longitudinal research

that begins with young children, such as that featured in Part I of the handbook, will be required to determine whether, or perhaps when, one takes precedence over the other.

Niemiec, Ryan, and Deci discuss the concept of autonomy in self-regulation terms. Their analysis touches on a core assumption of many models of self-regulation—that individuals exercise will in choosing among behaviors and outcomes. In their view, true self-regulation implies autonomy, which varies from one action to the next. Furthermore, people vary in their tendency to function autonomously; that is, they vary in the extent to which they regulate their own behavior. The authors offer a critique of theoretical perspectives that question the possibility of autonomy and, therefore, self-regulation. By disentangling independence and autonomy, they show how behavior contingent on the environment can, nonetheless, be autonomous if the individual exercises choice in allowing for the environmental influence. Similarly, automatized behaviors can be autonomous if, upon reflection, they would be chosen by the individual and, if desired, could be overridden. Defined in this way, autonomy is essential for self-regulation and, more broadly, for healthy psychological functioning.

Sansone, Thoman, and Smith describe their work on the self-regulation of motivation. In their model, while individuals are engaged in goal-directed behavior motivated by personal and/or situational characteristics, their motivation might increase or decrease as a function of their experience of engaging in the behavior. Of particular import is the degree to which the behavior is experienced as interesting. They specifically consider occasions when motivation provided by personal or situational characteristics is high, but interest is low. It is under these conditions that individuals might sustain the behavior by increasing interest through self-regulation. They review a host of studies that illustrate the role of personality in when and how interest is self-regulated. They illustrate the role of interest regulation in two important contexts—career choice and relationship maintenance. Sansone et al.'s work exemplifies the integration of the personality and information-processing perspectives on self-regulation through the conditional influence approach described earlier.

Karoly describes his conceptual model of self-regulation and reviews research inspired by the model. As in the previous chapters in Part II, the author argues that, to be fully understood, models of self-regulation must account for characteristics of the individual as they are manifest and operate in situational context. A strength of Karoly's model is its specificity, both in terms of what self-regulation is and what it is not. The goal construct is central in his model and is specified and assessed at a level of detail unmatched by other accounts of goal pursuit. Karoly illustrates the usefulness of this model for understanding specific and consequential goal-guided activities such as pain management, physical exercise, and academic performance. Theory-driven measurement is a centerpiece of Karoly's work, and he presents compelling results of work that makes use of measurement tools design to capture the richness of goals and goal-related thoughts and behaviors. These measures exemplify the author's assertion that self-regulation is complex and multilayered, and that empirical efforts to understand self-regulation ought to be designed in such a way that they capture this complexity and richness.

In the final chapter in Part II, DeWall, Baumeister, Schurtz, and Gailliot discuss the implications of variability in the capacity for self-regulation for the expression and influence of personality traits. They liken the capacity for self-regulation to strength or energy such as that generated by a muscle. They review evidence indicating that, as with muscular strength, this capacity is limited; thus it can be exhausted, leading to ego depletion and consequent failures of self-regulation. They reason that when the capacity for self-regulation is compromised, the influence of personality on behavior may be strengthened or weakened. For instance, when social convention runs contrary to what personality might dictate, ego depletion, by undermining the capacity to follow social convention, should result in pronounced effects of personality on behavior (cf. Caspi & Moffitt, 1993). Conversely, when the expression of a personality trait involves self-regulation, ego depletion should thwart that expression, resulting in a reduction in the influence of personality on behavior. DeWall et al. present data from a large number of studies to illustrate these and other conditions under which ego depletion strengthens or weakens the expression and influence of personality. Their work is prototypic of the conditional influence approach to integrating personality and self-regulation described earlier in this chapter.

Individual Differences

Ilkowska and Engle begin Part III, which concentrates on individual differences relevant to self-regulation, by drawing our attention to variability in a fundamental aspect of information processing: working memory. After defining the working memory system and its functions, the authors describe research showing that, as children's working memory develops, their effectiveness at self-regulation improves. They also show that variability in working memory capacity in adulthood is associated with various aspects of the information processing involved in self-regulation. Personality and social psychologists who study self-regulation will find particularly useful a section of the chapter on measuring working memory capacity. In the latter half of the chapter, the authors draw on a number of literatures to show the link between working memory and a host of problem behaviors and behavioral deficits typically viewed as resulting from poor self-regulation.

Scholer and Higgins provide an overview of regulatory focus theory, highlighting two fundamentally different forms of self-regulation. Self-regulation from a promotion orientation involves striving for ideals through accomplishment and growth, whereas self-regulation from a prevention orientation involves fulfilling duties and obligations through safe and responsible behavior. Importantly, although individuals vary across situations in their characteristic orientation, situational pressures can cause them to self-regulate in ways that are not characteristic of them. Because individuals can be shifted from one orientation to the other, the literature inspired by regulatory focus theory includes, in addition to studies in which regulatory focus is measured, experiments in which individuals are randomly assigned to a promotion or prevention

orientation. Scholer and Higgins draw on both types of studies to provide a detailed account of how promotion- and prevention-focused self-regulation operate in circumstances that require self-regulation (e.g., failure, temptation, group dynamics). A key feature of their model, upheld by a growing empirical literature on regulatory focus, is that, generally speaking, neither orientation is superior to the other. In the best case, individuals self-regulate from the orientation that best matches current situational pressures.

The chapter by Maddux and Volkmann focuses on self-efficacy, a highly influential construct that captures variation in beliefs about what one can and cannot do in certain conditions. Self-efficacy differs from other individual differences covered in Part III of the handbook in its specificity. Self-efficacy beliefs refer to specific behaviors and arise from direct and indirect experience with the behavior. Although self-efficacy beliefs are behavior specific, the likelihood of developing strong self-efficacy beliefs can be attributed, in part, to stable traits. The authors review research that points to a number of basic personality dimensions associated with the development of self-efficacy beliefs. A key contribution of the chapter is their discussion of self-efficacy beliefs as they influence the process of self-regulation at different stages. They conclude the chapter with a section on collective efficacy, a group's shared beliefs about its competencies, introducing the term "collective regulation" to refer to the members of a group working together to pursue shared goals.

Jostmann and Koole discuss self-regulation as action control, presenting a continuum that, at its extremes, defines two orientations to self-regulation in demanding situations. Individuals with an action orientation readily develop intentions to act so as to manage situational demands, whereas individuals with a state orientation are indecisive and hesitant in demanding situations. Like the promotion and prevention orientations outlined in regulatory focus theory, individuals differ reliably in their tendency to adopt one or the other orientation but could, in specific situations, adopt either orientation. According to the authors, high demands challenge working memory and related processes necessary for effective self-regulation. Individuals with an action orientation are able to shield against these challenges—using cognitive, affective, and behavioral strategies—and therefore manage high demands in ways that individuals with a state orientation cannot. The authors close with a discussion of practical strategies available to action- and state-oriented individuals for managing demanding situations.

Magen and Gross offer a systematic analysis of self-control in the face of temptation. Drawing on extant models of self-regulation and emotion regulation, they propose a process model of self-control. They use relatively common temptation situations to highlight components of the process prescribed by their model. They propose an interplay between personality and the process of self-control. Personality influences both the types of objects and activities that are tempting to the individual and the self-control strategies they invoke. At the same time (and consistent with Morf and Horvath's analysis in Part II), characteristic strategies for exercising self-control in the face of temptation influence personality. The authors draw on a variety of

literatures in personality and self-regulation in support of each step of the proposed process.

Kruglanski, Orehek, Higgins, Pierro, and Shalev define self-regulation in goal-pursuit terms, highlighting two fundamental aspects of self-regulation: assessment and locomotion. Assessment concerns processes associated with comparison in self-regulation; specifically, comparisons between alternative goals or means to achieving goals. Locomotion refers to processes in self-regulation that involve moving from the current state toward another state. In regulatory mode theory, these modes are orthogonal; that is, concern for one has no implications for concern for the other. Temperament and experience govern the degree to which individuals differ in their concern for each in the process of self-regulation. In terms of goal pursuit, high levels of locomotion are associated with preferences for activity, and high levels of assessment are associated with preferences for evaluation of alternatives. Although some goal pursuits emphasize one over the other, in general, goal pursuit is most effective when the two modes are effectively implemented. The authors illustrate these modes and the relative effectiveness of the various combinations of preferences for them by reviewing their accumulated work on individual and interpersonal goal pursuits. They also discuss research demonstrating the value of a regulatory mode analysis for performance and change in organizations and cultural differences.

Crocker, Moeller, and Burson draw attention to the incompatibility of self-regulation devoted to managing self-esteem and self-regulation focused on achieving important long-term goals. They refer to a focus on self-esteem maintenance as egosystem motivation and argue that, because of the emotions it entails, it occupies attention, motivation, and cognitive resources that might otherwise be used in the pursuit of goals that focus away from the self and toward others. They present findings from their research program on contingencies of self-esteem that illustrate the deleterious effects of the chronic and situational pursuit of self-esteem—low intrinsic motivation, high stress, and premature abandonment of relevant activities. Ecosystem motivation, in contrast, encompasses a concern for others and self in relation to others. It involves less emotion than egosystem motivation (though it is not free of emotion), and is characterized by self-regulation that is more effective and not an impediment to supportive relationships with others. They present findings from new research on the degree to which the tendency to pursue compassionate goals—those that emphasize constructiveness and support of others—is associated with improved self-regulation in the pursuit of personal goals.

VanDellen, Bradfield, and Hoyle continue the focus on self-esteem and self-regulation by examining the self-regulation of state self-esteem as a function of trait levels of self-esteem. They argue that, unlike trait self-esteem, which is quite stable across the lifespan, state self-esteem varies from moment to moment. Because self-regulation is prompted by discrepancies between expectations and reality, the strongly positive view of self characteristic of individuals high in trait self-esteem and the likelihood of social feedback that does not support this view ensures that they must routinely manage their state self-esteem through self-regulation. VanDellen et al.