

# Self-Regulation and the Problem of Human Autonomy: Does Psychology Need Choice, Self-Determination, and Will?

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**ABSTRACT** The term *autonomy* literally refers to regulation by the self. Its opposite, *heteronomy*, refers to controlled regulation, or regulation that occurs without self-endorsement. At a time when philosophers and economists are increasingly detailing the nature of autonomy and recognizing its social and practical significance, many psychologists are questioning the reality and import of autonomy and closely related phenomena such as will, choice, and freedom. Using the framework of self-determination theory (Ryan & Deci, 2000), we review research concerning the benefits of autonomous versus controlled regulation for goal performance, persistence, affective experience, quality of relationships, and well-being across domains and cultures. We also address some of the controversies and terminological issues surrounding the construct of autonomy, including critiques of autonomy by biological reductionists, cultural relativists, and behaviorists. We conclude that there is a universal and cross-developmental value to autonomous regulation when the construct is understood in an exacting way.

The concept of autonomy has become increasingly accepted, refined, and applied within the discipline of philosophy (Friedman, 2003). Indeed, Taylor (2005) argued that the nature and value of autonomy are now common topics within philosophy and that these discussions of autonomy are “underpinned by an increasingly flourishing and

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sophisticated literature” (p. 1). Similarly, within the field of economics there is growing interest in human freedom and autonomy and their significance for a society’s quality of life (e.g., Sen, 1999; Frey & Stutzer, 2002). This reflects the recognition that, when autonomously functioning, people are more deeply engaged and productive, generating human capital and wellness (Gough & McGregor, in press; Woo, 1984).

These literatures are of course welcome news within *self-determination theory* (SDT; Deci & Ryan, 1985; Ryan & Deci, 2000), a longstanding, empirically based approach to development and motivation in which autonomy is a core concept. As psychological theorists, we have long been grounding and evaluating our theory with respect to philosophical analyses of this critical construct, relying on post-Kantian phenomenological (e.g., Pfander, 1967; Ricoeur, 1966), modern analytic (e.g., Dworkin, 1988), and Buddhist (e.g., Brown & Ryan, 2003) traditions, among others. Moreover, we have applied our understanding of autonomy to the problems of engagement and wellness in ways fitting with recent economic and sociological analyses.

Yet, as philosophical and economic literatures on autonomy flourish, psychology appears to be going another direction. Prominent researchers have recently questioned either the reality or significance of the construct of autonomy and the closely related concepts of choice, volition, and will, declaring them illusory, burdensome, or bound by culture or gender. These suspicions about autonomy come in many forms. Some psychologists are what philosophers call *incompatibilists*, unable to reconcile a notion of self or autonomy with material determinism (Pinker, 2002). Others, finding that behavior can be initiated nonconsciously, have declared human will to be an illusion (e.g., Wegner, 2002). In a different vein, some psychologists define autonomy as a specific cultural value, rather than as a form of behavioral regulation, and thus criticize the idea as culture or gender bound (e.g., Iyengar & DeVoe, 2003; Jordon, 1991). By not differentiating the concept of autonomy from those of independence, separateness, or individualism, these thinkers are implicitly insisting that women or Asians or collectivists have no need for autonomy. Still other scholars equate self-determination with choice in the very narrow sense of making decisions between (often meaningless) options. Finding that such decision making is not always edifying, self-determination is described as *tyranny* (Schwartz,

2000). These new critiques concerning the existence or value of self-determination, autonomy, will, and choice join in a cacophonous chorus with behaviorists, whose decades-old war against “autonomous man” (Skinner, 1971) continues (e.g., Eisenberger & Cameron, 1996).

Some of these critiques raise important questions concerning the nature of autonomy and its limits. Yet, due to lack of theoretical differentiation, definitional confusion, catchy popularization, or overgeneralizations, some inappropriately dismiss the meaning, functional importance, and applied significance of human autonomy. Thus, the controversy is only in part one of empirical findings. It is also one of assumptive frameworks and of conceptual exactingness. Some of the most skeptical views of autonomy derive from a biological reductionism that, in our view, lacks an appreciation of multiple and interacting levels of causation (Ryan & Deci, 2004). Some are congruent with a radical cultural determinism, in which individual behavior is seen as scripted by culture (Cross & Gore, 2003). Such cultural determinism also connects with a postmodern view, within which people are viewed as chameleon-like conformists to contexts, without a coherent self-organization that chooses, moderates, or influences action (Gergen, 1991).

These popular, and sometimes sophisticated, critiques of autonomy require scrutiny, both with respect to their definitions and conceptual treatment of autonomy and the growing body of evidence suggesting that autonomy, when accurately defined, is essential to the full functioning and mental health of individuals and optimal functioning of organizations and cultures (Deci & Ryan, 2000; Ryan, Deci, Grolnick, & La Guardia, 2006).

Accordingly, we begin with an overview of the meaning of autonomy within contemporary philosophical discourse. We then describe autonomy as defined within SDT, which we see as consistent with well-grounded philosophical perspectives (Ryan, 1993). We then review research attesting to the significance of autonomy for behavior and well-being, but only briefly because these findings have been extensively reviewed elsewhere (e.g., Ryan et al., 2006). Instead, we turn to a consideration of varied positions in contemporary psychology concerning the existence or importance of autonomy and related constructs. We consider each in terms of both conceptual and empirical issues and conclude by discussing the value of these debates.

## DEFINING AUTONOMY: A BRIEF PHILOSOPHICAL OVERVIEW

The topic of human autonomy, or self-determination, has occupied philosophers, both Eastern and Western, since the onset of recorded thought. No short discussion could do justice to this history, so we briefly review just two broad traditions that are especially relevant. The first, based in post-Husserlian phenomenological studies (e.g., Ricoeur, 1966), concerns the experience of autonomy versus heteronomy and the capacities, conditions, and consequences related to it. This tradition underlies Heider's (1958) and de Charms's (1968) work on personal causation, from which SDT evolved. A second tradition concerns analytic approaches to autonomy that focus on the concept's usage, plausibility, and value. This tradition has many representatives, but we focus on those derived from Frankfurt (1971) and those embedded in feminist/relational perspectives (e.g., Friedman, 2003; Mackenzie & Stoljar, 2000).

### *Phenomenology and Autonomy*

Pfander (1967) provided a foundational phenomenology of autonomy. Using methods drawn from Brentano and Husserl, he distinguished *self-determined acts*, which he described as those reflecting one's will, from other forms of striving or motivation. In Pfander's analysis, acts of will are exclusively those experienced "precisely not as an occurrence caused by a different agent but as an initial act of the ego-center itself" (p. 20). He elaborated that external others or inner urges may often supply the "grounds" or impetus for self-determined acts, but when this occurs, the self or "ego-center" must endorse actions that follow from the external prompts.

Ricoeur (1966) provided a more elaborate analysis of will and self-determined acts. Like Pfander, he argued that such acts are those fully endorsed by the self and thus are in accord with abiding values and interests. Ricoeur stated that having autonomy need not entail an absence of external influences, pressures, or mandates to act. A person can be self-determined even when acting in accord with an external demand, provided the person fully concurs with or endorses doing so. Circumstances must, however, engender in the actor a reason for willingly complying to have autonomy. Thus, autonomy is not restricted to "independent" initiatives but also applies to acts reflecting wholehearted consent to external inputs or inducements.

The existentialist distinction between authentic and inauthentic actions is also related (Ryan & Deci, 2004; Wild, 1965). Authenticity describes behavior “really proceeding from its reputed author.” Authentic actions are those for which one takes responsibility; they are not half-hearted or disowned. Ekstrom (2005) and Kernis and Goldman (2005) similarly stress that authentic or autonomous acts proceed from one’s core self, representing those preferences and values that are wholeheartedly endorsed.

These analyses specify that for an act to be autonomous it must be endorsed by the self, fully identified with and “owned.” This, of course, can apply to behaviors that are easily chosen (e.g., playing at a sport might be autonomous, being fun and intrinsically motivated), as well as to those representing more difficult undertakings (forgoing fun to work on a valued task). These analyses also underscore that to be autonomous there must be some relative unity underlying one’s actions; they must be congruent and endorsed by the whole self. Finally, they convey that autonomy is not defined by the absence of external influences but rather by one’s assent to such influences or inputs. Autonomy is thus not equivalent to independence (Ryan, 1993).

### *Modern Analytical Approaches*

Taylor (2005) dates the modern philosophical landscape of autonomy studies to the 1970s, when several authors introduced what he labels *hierarchical accounts* of autonomy. Despite some differences in their details, these accounts by Frankfurt (1971), Dworkin (1988), and others commonly maintain that people are autonomous only to the extent that their first order motives are (or would be) endorsed at a higher order of reflection. A man who decides to “have another drink” would not be autonomous unless, in reflecting on this motive, he could fully endorse it. A lack of full endorsement (e.g., an inner conflict about it or an active avoidance of reflection) would imply that the act is not autonomous. Moreover, if his capacity for reflective endorsement were impaired, say, by external pressure or too much alcohol, so too would be his autonomy.

These hierarchical frameworks arrive at conclusions similar to the phenomenologists who focused on the experience of self-endorsement. Thus, like Ricoeur (1966), Dworkin (1988) underscores that autonomy does not require behaving without or against constraints

or demands. For example, although one might feel constrained in stopping for a school bus, if one assents (on reflection) to the value of traffic laws for ensuring children's safety, one could willingly consent to the constraint and, in doing so, lose no autonomy. For Dworkin, in fact, true autonomy entails endorsement of one's actions at the highest order of reflection. Thus, in reflecting on first order motives, people would not just evaluate them as the second order appraisal but would consider that appraisal at yet a higher level. This is not an infinitely regressive process because, practically, there are few actions for which more than a few levels of reflection are possible. More importantly, one can be autonomous in finding a "decisive identification" with a motive or value upon which action can be organized.

Most of the nuanced philosophical discussions of autonomy are not, therefore, about the existence of autonomy but rather about what the processes of endorsement or decisive identification entail. As psychologists, we find these discussions very important as they relate to people's experience of autonomy, the circumstances and attributions that conduce to it, and the consequences that follow from it.

### **THE SELF-DETERMINATION THEORY VIEW OF AUTONOMY**

SDT views the issue of autonomy as a key to understanding the quality of behavioral regulation. As an empirical approach to motivation and personality, SDT is concerned not only with understanding the nature and consequences of autonomy, but also in detailing how autonomy develops, and how it can be either diminished or facilitated by specific biological and social conditions. That is, SDT focuses on the interplay between inherent tendencies toward integrated, vital functioning and our vulnerabilities to being controlled.

Within SDT, *autonomy* retains its primary etymological meaning of self-governance, or rule by the self. Its opposite, *heteronomy*, refers to regulation from outside the phenomenal self, by forces experienced as alien or pressuring, be they inner impulses or demands, or external contingencies of reward and punishment. SDT specifically distinguishes autonomy from independence, noting that one can, for example, be autonomously dependent, or forced into independence (Ryan, 1993). Indeed, recent work shows that people are more prone

to depend upon others who support their autonomy (Ryan, La Guardia, Solky-Butzel, Chirkov, & Kim, 2005).

### *SDT's Autonomy Continuum and Its Relation to Outcomes*

Within SDT, autonomy for any given action is a matter of degree. Central to the theory is a continuum of motivational or regulatory styles that range heteronomy (controlled regulation) to autonomy or true self-regulation (Ryan & Deci, 2000). Specifically, SDT classifies the most heteronomous forms of motivation as being *externally regulated*, those that reflect the partial assimilation of external controls as *introjected*, those that reflect a personal valuing of the actions as *identified*, and those that are both personally valued and well synthesized with the totality of one's values and beliefs as *integrated* (Ryan & Deci, 2000). A fifth form of regulation, *intrinsic motivation*, is also considered highly autonomous, as it is unconflicted and based on interest in the behavior. Self-reports of these types of motivation have been psychometrically shown to fall along an underlying continuum of relative autonomy (Ryan & Connell, 1989), a pattern that has been widely replicated across varied cultures and age groups.

Similarly, at the level of personality functioning, people can be distinguished by individual differences in their tendencies toward autonomous functioning across specific domains and behaviors. Although there are several measures of such individual differences, the most central is the concept of *causality orientations* (Deci & Ryan, 1985b; Koestner & Losier, 1996). In this model, people's propensities to regulate behavior through different strategies are assessed. Those who are *autonomy oriented* organize their behavioral regulation by taking reflective interest in possibilities and choices; those who are *control oriented* tend to regulate behavior by focusing on perceived or ambient social contingencies, such as salient rewards and punishments. Finally, an *impersonal causality orientation* pertains to people whose behavioral regulation is often impaired or uncontrolled—that is, they lack a sense of personal causation. Differences in the strength of these orientations have been predictive of behavioral (e.g., Neighbors, Vietor, & Knee, 2002) interpersonal (e.g., Hodgins, Liebeskind, & Schwartz, 1996), and mental health outcomes (e.g., Strauss & Ryan, 1987).

Literally hundreds of studies within the tradition of SDT have examined the importance of relative autonomy on human functioning.

SDT's empirical strategy is multimethod. A primary strategy is to create experimental conditions conducive to the experience of either autonomy or heteronomy and look at their contrasting consequences. Another strategy is to ask people about their relative autonomy in different situations or for different goals and then to examine the correlates and consequences of those reports both cross-sectionally and longitudinally. A third strategy identifies naturally occurring conditions that foster or thwart autonomy and examine their effects. For example, studies examine the quality of experience and behavior in settings run by teachers, managers, or physicians who use autonomy-supportive versus controlling approaches. Yet another method is the within-person strategy involving an examination of the consequences of variations in felt autonomy from moment to moment or context to context. Using all these strategies and focusing on a wide array of moderators and outcomes, SDT provides a comprehensive picture of the importance of autonomy and the dangers of heteronomy for well-being, healthy development, performance, creativity, and social integration. We highlight just a few significant themes (see Deci & Ryan, 2000; Ryan et al., 2006, for more extensive reviews).

*Performance and creativity.* When autonomous motivation (whether intrinsic or integrated) is undermined, there are well-documented costs in terms of performance, especially when it requires flexible, heuristic, creative, or complex capacities (e.g., Amabile, 1983; Utman, 1997).

*Quality of relationships.* Support for autonomy facilitates attachment, intimacy, and the outcomes associated with them. Blais, Sabourin, Boucher, and Vallerand (1990) and, more recently, Knee, Lonsbary, Canevello, and Patrick (2006) found that greater autonomy for being in a relationship was associated with greater satisfaction, relationship stability, and well-being for both partners. La Guardia, Ryan, Couchman, and Deci (2000) used multilevel modeling to show that within-person variability in security of attachment is, to a significant degree, a function of the degree to which the individual experiences autonomy with a relational partner. Using a similar strategy, Ryan et al. (2005) showed that emotional reliance on others is predicted by autonomy support. Unlike theorists who have portrayed autonomy and relatedness as opposed (e.g., Iyengar



& Lepper, 1999; Jordon, 1991), SDT has continually found that people feel most related to those who support their autonomy.

*Well-being and psychopathology.* In SDT, autonomy is considered a basic psychological need (along with relatedness and competence), and thus its effects on well-being are expected to be pervasive. Controlling contexts yield negative effects on wellness, whereas those that are autonomy supportive enhance it (Ryan & Deci, 2001). Individual differences in autonomy also predict well-being in a corresponding way (Deci & Ryan, 2000). Moreover, examination of many forms of psychopathology reveal disturbances of autonomy and show how excessively controlling social contexts play an etiological role in their development (Ryan et al., 2006). Such “pathologies of autonomy” confirm that autonomy is indeed more than an irrelevant illusion and, instead, is a central characteristic of healthy functioning.

#### *The Bases for Autonomous Functioning*

As a quality of regulation, autonomy is characterized by integrative processing of possibilities and a matching of these with sensibilities, needs, and constraints. Obviously, such quality and depth of processing depends upon complex neurocircuitry, whose topography differs from that of controlled motivational processes (Ryan et al., 2006; Walton, Devlin, & Rushworth, 2004). In general terms, autonomy requires coordination among prefrontal cortical regions that oversee and integrate regulation, subcortical striatal-thalamic areas that promote or inhibit motivation, and inputs from the hippocampus and amygdala that provide contextual and affective information (e.g., Bradley, 2000; Chambers, Taylor, & Potenza, 2003). As Walton et al. (2004) stated, neural mechanisms “differ depending on whether we are told what to do or are able to exercise our volition” (p. 1259). Thus, to support autonomous functioning, executive functions must be both selective and fully informed by affective and memory related processes. Delays or damage in the development or functioning of prefrontal areas and connections with limbic structures produce vulnerabilities to autonomy disturbance (e.g., Bechara, Tranel, Damasio, & Damasio, 1996; Spence & Firth, 1999), which is instructive concerning the mechanisms through which autonomy develops and works.

*Facilitating and Undermining Environments: The Social Psychology of Autonomy*

Some existentialists claim that, even under adverse conditions, people can reflectively choose how to act, which no doubt is true. But in “real” life, and regardless of this potential, people often feel they cannot be autonomous. Social controls, evaluative pressures, rewards, and punishments can powerfully constrain or entrain behavior, sometimes outside awareness.

Although coercion supplies an obvious example of how heteronomous behaviors can be fostered, there are subtler and less obtrusive ways in which autonomy can be obstructed. One that has been frequently examined in SDT studies is the controlling use of rewards. Indeed, SDT’s origins date to experimental studies concerning the facilitation versus undermining of intrinsic motivation by rewards (Deci & Ryan, 1985b). Although several factors are essential to intrinsic motivation, perceived autonomy has been shown to be a necessary condition, and extrinsic rewards run a serious risk of diminishing autonomy and intrinsic motivation (Deci, Koestner, & Ryan, 1999). Indeed, when enticing rewards are contingently offered, people can easily lose sight of important values, needs, and social concerns. Further, when people place priority on extrinsic rewards, they tend to report less autonomy, happiness, and quality of relationships (Kasser, 2002). Studies contrasting other controlling conditions (e.g., surveillance, evaluation, threat of punishment) with support for autonomy (e.g., informational feedback, opportunity for meaningful choice) have reliably found that the former derail and the latter facilitate intrinsic motivation.

Although intrinsic motivation represents a form of optimal experience (Csikszentmihalyi, 1990; Deci & Ryan, 1985b), most human behaviors beyond early development are extrinsically motivated and represent attempts to accomplish ends not intrinsic to the action. As stated earlier, extrinsic motivation in SDT varies along a continuum of internalization that reflects degrees of autonomy. Both experiments and field studies have shown that controlling conditions (e.g., demanding language, minimization of choice) forestall internalization, promoting controlled regulation that can exact heavy tolls in terms of behavioral outcomes and well-being. Further, it is interesting to note that manifestations of introjection such as ego involvements and objective self-awareness can, in turn, also

undermine intrinsic motivation (e.g., Ryan, Koestner, & Deci, 1991).

In the real world, social controls are ubiquitous. In schools, for example, teachers use many of the methods that can undermine intrinsic motivation, including grades, detentions, and honor roles. They also use public praise and humiliation as means of shaping behavior. Given these opportunities, it is not surprising that the degree to which educators support autonomy versus control behavior is a powerful predictor of school engagement and learning outcomes (Ryan & La Guardia, 1999). Similar dynamics are also apparent in work motivation (see Gagné & Deci, 2005).

Studies of health care and therapy similarly attest to the importance of practitioners' support for autonomy. Studies show that autonomy support leads to greater program involvement, adherence, and maintained change for behaviors such as smoking cessation, weight loss, glucose control, and exercise (see Williams, 2002).

Perhaps the most pervasive and powerful force that controls behavior is conditional regard (Deci & Ryan, 1995). Because of the basic importance of the need for relatedness (Ryan, 1993), people are highly motivated to be recognized or loved by others. Yet parents, teachers, and peers often make their affection or regard contingent upon others' meeting their expectations or sharing their views. Assor, Roth, and Deci (2004) illustrated the costs of this form of control. Parental use of conditional regard led children to introject the regulation of expected behaviors, undermining more autonomous motivation. Children controlled in this way displayed more fragile self-esteem, more fleeting satisfaction following successes, more shame following failures, and more feelings of rejection by and resentment toward their parents.

The impacts of social environments on autonomy have also been shown in several "within person" studies. For example, Reis, Sheldon, Gable, Roscoe, and Ryan (2000) showed that people's daily well-being fluctuated in accordance with whether they experienced autonomy support versus control. Recently, Lynch, La Guardia, and Ryan (2005) showed that variations in autonomy support across intimate relationships predicted relationship satisfaction and vitality and also more Openness, Agreeableness, Conscientiousness, and Extraversion as well as less Neuroticism relative to one's own baseline for these traits. This was replicated in Russian, U.S. and Chinese

samples, confirming that this is not just a Western or individualist dynamic.

Given the pervasive effects of variations in both the experience of autonomy and the social conditions that either support or thwart it, it seems undeniable that autonomy is a central human concern. Yet autonomy continues to be a construct that many psychologists find problematic.

### **CONTROVERSIES CONCERNING THE CONCEPT OF AUTONOMOUS SELF-REGULATION**

A number of contemporary psychologists have questioned, and in some cases derided, autonomy, choice, and will. Derision of autonomy has long been the practice of behaviorists, whose paradigm tautologically locates all causes of behavior in the environment. Interestingly, some neuroscientists of a reductionist bent have recently taken a very similar tack, but they displace the behaviorists' tautology to inner mechanisms by claiming that all behaviors are "caused" by the brain. Neither view makes room for a functioning self with the autonomy that accompanies it. Skepticism concerning autonomy also derives from new work on implicit and nonconscious behavioral processes, which has led some to suggest that concepts like autonomy and will are illusory. Still other critiques come from those who equate self-determination with "making choices" and from cross-cultural theorists who consider autonomy to be a Western, individualist value. We review these perspectives, discussing how each conceives of autonomy and in what ways we might contrast each with the SDT approach.

#### *Behaviorism and Social-Cognitive Theory: Autonomy as Independence From Environment*

Perhaps the most historically salient denial of autonomy in psychology can be attributed to behaviorists, most notably Skinner (1971), who argued that the concept of autonomy reflects an ignorance of the actual factors that control behavior. Specifically he stated, "If we do not know why a person acts as he does, we attribute his behavior to him" (p. 53). Control over action was invariably defined as residing in reinforcements external to the organism, so any organization that appeared in action was credited to the organization of the

reinforcement contingencies, rather than integrative processes. This perspective pits external influences against autonomy instead of viewing autonomy as the self-endorsement of actions, some of which are externally prompted.

Based on this view of the impossibility of autonomy, behaviorists have for decades attempted to challenge SDT on empirical grounds. In the 1970s and 1980s there were failed attempts to provide a reinforcement account of intrinsic motivation (Deci & Ryan, 1985b). Subsequently, behaviorists tried to explain intrinsic motivation with internal processes that did not include autonomy. A notable example is a meta-analysis by Eisenberger and Cameron (1996). In contrast to three prior meta-analyses showing that rewards undermined intrinsic motivation, they claimed to show that rewards have no negative effects on intrinsic motivation. Yet when Deci et al. (1999) reanalyzed 128 experiments encompassing those used by Eisenberger and Cameron, they found that Eisenberger and Cameron's analyses were plagued by miscalculations, incorrect recording of effect sizes, misclassifications, use of the wrong control groups, and other errors numerous enough to generate the "null" results they celebrated. When accurately analyzed, the results fit entirely with SDT's hypotheses concerning when rewards do or do not decrease intrinsic motivation. The results specifically confirmed that the controlling use of rewards undermines intrinsic motivation.

Interestingly, SDT has never disputed the power of reinforcement contingencies. In fact, we argue that it is the very power of rewards to control behavior that makes people vulnerable to the loss of intrinsic motivation and, more generally, to not behave authentically or in accord with abiding values and interests. Reward contingencies, if compelling enough, can get people to do almost anything, as no one who looks at the impact of reward-based economies could doubt (Kasser, 2002). Potent incentives can lead people to forego autonomy, act against needs, and neglect or destroy what they value most, from relationships to the environment.

SDT classifies behavior motivated by extrinsic rewards and punishments as *external regulation*, which is one among several forms of extrinsic motivation. Operant psychology has documented that external regulations can powerfully motivate, but external regulation also has consequences that behaviorists have too long ignored. One is that external regulation forestalls full internalization, thus resulting in poor maintenance of behaviors. Externally regulated

behaviors are dependent on the continuous presence of the controls, which is a critical issue in therapy where the maintenance and transfer of change are paramount. External regulation also typically leads to a low quality of behavior because, when controlled, people tend to do only what is required. Finally, external regulation is often associated with lower well-being, engagement, and satisfaction. Although behaviorists do not focus on subjective experience, most people care deeply about it.

Some social-cognitive theorists have similarly depicted autonomy as a freedom from external influences. Bandura (1989), for example, defined autonomy as action that is “entirely independent” of the environment (p. 1175). He then argued that because virtually all actions are affected by one’s environment, there can be no meaningful concept of autonomy. Thus exorcising autonomy from consideration, Bandura then reduces agency to self-efficacy, or to beliefs about contingencies and competence. In our view, self-efficacy (called *perceived competence* within SDT) is a necessary condition for motivation. Yet the belief that one can successfully perform an action or control an outcome does not address why one acts, an issue at the very heart of human commitment and engagement. For this reason, self-efficacy theory is unable to distinguish alienated from autonomous actions or predict the consequences that follow from this distinction.

### *Reductionistic Neuroscience: Autonomy as Regulation Without a Brain?*

As psychology increasingly seeks out the neurological underpinnings of human behavior and experience, some interpret interesting new evidence as undermining ideas of self and self-determination. Consider this passage from Pinker (2002, p. 43):

[E]ach of us feels that there is a single “I” in control. But that is an illusion that the brain works hard to produce . . . . The brain does have supervisory systems in the prefrontal lobes and anterior cingulate cortex, which can push the buttons of behavior and override habits and urges. But these systems are gadgets with specific quirks and limitation; they are not implementations of the rational free agent traditionally identified with the soul or the self.

Pinker's analysis eviscerates the "I" as illusion but linguistically replaces it with a new intentional subject, the brain, that pushes buttons, controls urges, and spins illusions of self. The brain, so reified, decides and activates gadgets. The logic is that if the brain is involved, it is therefore the ultimate and most relevant cause of action. But, in fact, supervisory "gadgets" in the brain are activated by people's interpretation and construal of events, and their reflections can alter those construals. There can be no doubt that all these events are dependent on brain processes, but reducing the nature of self and social influence processes to brain changing represents a collapsing of the rich and multiple levels of causal analysis that are interestingly interrelated.

Both autonomous self-regulation and controlled regulatory processes operate within an organism and have distinct biological supports. As neuroscience has advanced, there is increased interest in, and documentation of, the fact that autonomous actions have a very different dynamic topography than controlled behaviors (Ryan et al., 2006). Yet the fact that distinct neurological processes corresponding to experiential distinctions can be identified does not make the latter illusory. Instead, it confirms that the nature and impact of such self-related processes are quite real.

As researchers continue to discover neurological processes that serve, constrain, and sometimes direct action, Bargh (1997) suggested that this could eventually crowd out antiquated and ephemeral ideas of freedom and will. His speculation logically rests on a view of will (autonomy) as a non-brain-related force that intervenes in action. Autonomy would be akin to the soul postulated by Descartes that mysteriously tilts the pineal gland to alter mechanical sequences of action. We know of no such force, and we agree that when will, self, or autonomy is so defined, it would recede in the face of neuroscience discoveries, just as the vacuous concepts of vitalism receded with genetic discoveries.

### Regnant causes

Recognizing that all behavioral events can (potentially) be described in levels of analyses ranging from molecular to molar, the important agenda is not reducing one level into another but coordinating the levels. Nonetheless, given the availability of varied levels of analysis, it is often critical to choose which level to focus on to derive

meaningful explanations and interventions. For every question asked about causation there is one or more levels of analysis most pertinent for formulating an answer. We label these the *regnant levels* of explanation (Ryan & Deci, 2004), defined as that level (or levels) that captures the variables most relevant to what is to be explained and that is most relevant for effective interventions.

Consider the issue of improving a school system. The neurocircuitry of the brains of administrators, teachers, and students would be actively involved in any such change, but an intervention plan would likely be more useful if it were formulated in terms of structural and interpersonal changes that affect the experience, values, and motives of the actors involved than if it were formulated in terms of cells in the brain that should be activated and cortical activation that will lead to desired motor outputs. The fact that an explanation is at a lower level of analysis does not necessarily make it more scientific or causally accurate, and it certainly does not make it more practically useful as an explanation or point of intervention.

There are times when neurological analysis is the regnant level of explanation. Were a student unable to process speech or unable to enact intentions for nonmotivational reasons, one should surely seek a neurological consult. And there are critical discoveries to be made in integrative inquires across levels of analysis. But for many purposes of social design and intervention, behavior is explained most meaningfully by looking at molar social events and their construal. And where autonomy enters the picture is in this realm of social influence and the *functional significance* (Deci & Ryan, 1985b) or meaning of social events for people's goals and motives. When researchers study such issues and their predictive relations to outcomes, they are not denying material causation or the necessity of a brain that supports these processes. But they are also not getting lost in the twigs when trying to survey or manage a forest.

### *Nonconscious Determination: Is Self-Determination an Illusion?*

An interesting and substantive concern about autonomy stems from growing evidence that actions may be caused by factors of which people are unaware (Wilson, 2002). Bargh (1997), for example, cited studies in which people are nonconsciously primed to enact intentional behaviors and then attribute their actions to will or self-initiation. Such experiments call into question whether all acts are



nonconsciously determined and whether attributions of being self-motivated have any veracity, leading Wegner (2002) to title a recent book *The Illusion of Conscious Will*.

Within SDT, the distinction between implicit and explicit motives (and between nonconsciously vs. consciously instigated actions) is viewed as related to, but not isomorphic with, autonomous versus controlled motivation (Deci & Ryan, 1980). Implicit motives and nonconscious prompts can instigate either autonomous or controlled behaviors. We long ago argued for a distinction between automatic and automatized behaviors (Deci & Ryan, 1980). Back then, we defined *automatic behaviors* as those that are pushed by controlled processes and whose occurrence is not easily brought into the realm of active choice. *Automatized behaviors*, in contrast, were said to be those that, if reflected upon, would fit with one's values or needs and could be readily changed when they no longer fit. Such behaviors become automatized because they afford efficiency, given the limitations of conscious processing capacities. Such a distinction is still needed for interpreting nonconsciously prompted actions, their malleability and their meaning.

A woman who automatically shifts her car into a higher gear when the cue of engine noise nonconsciously prompts it may be acting autonomously. Were she to consider it reflectively, she would wholly endorse the action. However, many behaviors driven by implicit motives are not autonomous. Despite a personal commitment to saving money for retirement, a man implicitly primed by an advertisement finds himself mindlessly buying a useless product. This would be a controlled action, and were he to consider it reflectively, he would agree that the behavior was inconsistent with his own values. In short, the mere fact of nonconscious versus conscious deliberateness does not inform us well concerning the autonomy of actions. Some habits and reactions are ones we would experience as autonomous; others seem alien, imposed, or unwanted.

At issue in this discussion is one's definition of will or autonomy or both. Wegner & Wheatley (1999) suggested that people experience will when they attribute their behaviors to their own thoughts. But as we said earlier, this is not the common definition of will or autonomy in philosophy. Initiating stimuli typically arise in the environment or the organism, so the impetus for most actions is not a disconnected thought. In fact, we agree with Wegner that people are often wrong

when they imagine that their own thoughts were the initial causes of their impulses or actions. Yet people's autonomy lies not in being independent causes but in exercising their capacity to reflectively endorse or reject prompted actions. When people take interest in an urge or a prompt and consent to its enactment, their behavior would be autonomous and the brain processes involved in its regulation would be different from those involved if the behavior were controlled. This view is consistent with findings by Libet (1999) suggesting that volitional action can be preceded by a readiness potential in the brain before any awareness of intention, but that consciousness has its function in approving (or vetoing) the commission of the act.

There are, nonetheless, important take-home points from the skepticism regarding will and autonomy. First, people are vulnerable to nonconscious primes, a concern heightened by technologies that can be used insidiously to stimulate desires. That is, nonconscious primes can compromise people's autonomy. Second, when an automatized behavior would no longer be reflectively endorsed, it is essential that it be reevaluated.

Studies within the SDT tradition are investigating these issues. Levesque and Pelletier (2003) found that under certain circumstances both implicit and explicit intrinsic motivation can predict persistence and affect. However, in a subsequent study, Levesque and Brown (2005) found that *mindfulness*—the tendency to be aware of what is occurring in the moment (Brown & Ryan, 2003)—moderated the power of implicit motives. Implicit motives had a greater effect on behavior when mindfulness was low. This suggests that while implicit motives can control behavior, reflective awareness is a potential antidote, a fact that many clinical approaches, and SDT, rely on.

*Mistaken causality.* Wegner (2002) and Wilson (2002) also questioned people's sense of control and causation, highlighting the finding that people sometimes have a sense of agency even when their control over outcomes is illusory. They provided many examples, although it is notable that the most compelling ones take place in strange and ambiguous situations, such as using Ouija boards or dowsing for water, where the actors have little experience and causal rules are mysterious. In addition, the illusions often concern control over outcomes (behavior outcome contingency) rather than the

autonomy of the actions. Presumably, people could be either autonomous or controlled when divining for water even if the outcome of finding water were not under their control.

Wegner's and Wilson's examples show that people can be tricked and fooled. Yet we know of no autonomy theorist who has ever doubted that self-deception is possible. Instead we believe their examples attest to the importance of a well functioning *self-compatibility checker* (Kuhl & Kazen, 1994) and of exercising one's reflective capacity (Deci & Ryan, 2000). What Wegner's and Wilson's examples do not show is that people cannot, in nontrivial and nonpressured situations, reflectively select behaviors that are congruent with their needs, values, and interests.

Indeed, after proclaiming will to be an illusion, Wegner (2002) ultimately suggests that the experience of will may be critical to human functioning. He postulates an *authorship emotion* that supplies a useful guide to the selection and regulation of behavior. In other words, Wegner seems to be acknowledging that the sensibility concerning autonomy is informative and functional. Indeed, that sensibility is what de Charms (1968) meant by *perceived locus of causality* and what we think of as an aspect of a deeply evolved adaptive capacity for autonomy (Deci & Ryan, 2000).

### *Does Choice Equal Self-Determination and Is Self-Determination Tyrannical?*

In a special issue of *American Psychologist* on positive psychology, immediately following our article on self-determination theory (Ryan & Deci, 2000), there was an article entitled "The Tyranny of Self-Determination." In it, Schwartz (2000) suggested that too many opportunities for choice can be overwhelming and burdensome. As he later articulated, at some point "choice no longer liberates. It might even be said to tyrannize" (2004, p. 2).

We agree that an excessive number of options can be daunting and wasteful of energy, and, as Schwartz claimed, that "not all choice enhances freedom" (2004, p. 4). But we take issue with his polemics. If choice does not equal self-determination or freedom in the ways he employed them, then why use these terms interchangeably in a title? A more accurate title might have been "The Burdens and Risks of Having Too Many Options or Too Many Decisions." His catchier title sounds counterintuitive and shocking, evoking as it

does ideas that are not his actual focus, ideas that, in our view, concern neither self-determination nor tyranny as typically defined.

Baumeister, Bratslavsky, Muraven, and Tice (1998), although not devaluing choice, argued that making choices is, in general, energy draining or ego-depleting, a claim more general than Schwartz's. In their study testing this, people in a "high choice" condition "were told that the decision of which speech to make was entirely up to them [however] . . . because there were already enough participants in one of the groups, it would help the study a great deal if they chose" the other speech topic (p. 1257). Notably, all the high-choice participants "agreed" to follow the experimenter. The "low choice" comparison group was simply assigned to one of the speeches. Results showed that high-choice participants were less persistent on a subsequent, independent task. The authors concluded that making choices is depleting.

To understand the results in the high-choice condition, one must consider what really went on. Was this true choice, or was it subtle pressure that felt controlling? In fact, this choice condition is very similar to an induction used by Pittman, Davey, Alafat, Wetherill, and Kramer (1980) as a controlling manipulation, which diminished intrinsic motivation. To test this, we recently ran three experiments contrasting Baumeister et al.'s high-choice condition with a "true-choice" condition, and found, using a standard ego-depletion task, that true choice was not depleting, whereas their so-called high (i.e., compelled) choice was (Moller, Deci, & Ryan, 2006).

Iyengar and Lepper (2000) suggested that although some theorists (e.g., Deci & Ryan, 1991) see choice as a positive motivator, there are downsides to choice. Reporting two studies in consumer settings, they found that exposure to too many options discouraged subsequent consumption. We do not doubt that, but we have two issues with their arguments. First, they portrayed SDT as advocating giving people many options (i.e., "choices"), when what we endorse is facilitating people's experience of choicefulness or volition (which providing options can, under specifiable circumstances, sometimes do). Second, although their results showed that too many options discouraged buying, other results deserve mention. People reported greater enjoyment when they had more rather than fewer options, even though they found the task more difficult. Although people with more options purchased less,

it is not at all clear that they experienced less intrinsic motivation or autonomy for the activity of looking, selecting or choosing.

These recent demonstrations of the problems with choice bring out a clear fact, namely, that choice has several meanings. One can have many options and not feel autonomy, but instead feel overwhelmed and resentful at the effort entailed in the decision making. Alternatively, one could have only one option (which functionally means no choice) and yet feel quite autonomous so long as one truly endorses that option. Furthermore, choice can, when meaningful, facilitate self-determination, especially when it allows one to find that which one can wholeheartedly endorse. But choice can be constructed to do nothing of the sort, instead engendering confusion or fatigue.

We have often used the phrase “a feeling of choice” to convey a sense of volition or autonomy. But number of options is not, by itself, defining of that feeling (Deci & Ryan, 1985b). Moreover, there are times, as Schwartz pointed out, when fewer options can liberate one from an onerous task of selection, and the anxieties that accompany it. But that, of course, is not a tyranny of self-determination; indeed, in some circumstances having fewer choices might support self-determination, competence, or both.

#### *Autonomy as a Cross-cultural Concept: Is It Only Western?*

Cultural relativists such as Markus and Kitayama (1991) have argued that autonomy, individualism, and independence are all Western values and thus predict behavior and well-being only of individuals raised in accord with those values. Extending this, Iyengar and DeVoe (2003) asserted that SDT's claims concerning autonomy have been widely disconfirmed in non-Western samples. According to the definition of autonomy we have always used, their claims implicitly assert that in Eastern cultures there would be no negative effects of coercive control and no benefits of autonomy support as people go about their lives. Could the authors possibly mean that?

On closer inspection, one sees that Iyengar and others have often fused autonomy with independence and individualism. Like Bandura (1989), who defined autonomy as acting independently of any external influences, these theorists seem to assume that when one fits in with a group, acts in accord with tradition, or follows the guidance

of parents, one is necessarily lacking autonomy. Yet the view that assenting to external guides or influences is antithetical to autonomy is inconsistent with current philosophical perspectives on autonomy and is counter to considerable SDT research (Ryan, 1993). Further, we do not dispute that cultures value independence and individualism differentially. But the question is: if people truly valued and endorsed collectivism, would they not be autonomous when acting in accord with these values? Conversely, if they felt controlled to act collectively, would this not have psychological costs for them?

Recent studies have not only challenged but have contradicted these assertions by Iyengar and DeVoe (2003) and others who claim that the evidence pervasively shows the unimportance of autonomy outside individualist contexts. First, where autonomy has been properly assessed, it appears both to be understood and to function similarly in the East and West. We provide just a few examples. Yamauchi and Tanaka (1998) and Hayamizu (1997), in Japan, and Kim (2004), in South Korea, applied the SDT framework to assessments of autonomy in schoolchildren, finding that children who were lower in autonomy showed less motivation and interest, more superficial approaches to learning, and lower well-being. Chirkov, Ryan, Kim, and Kaplan (2003) asked people from four countries (Russia, United States, Turkey, and South Korea) to describe reasons why they would perform a variety of behaviors, including collectivistic and individualistic practices. Although there were differences in the behaviors people saw as typical of their cultures, autonomous reasons for engaging in behavior were uniformly associated with greater well-being, with no moderation of this effect by culture. Chirkov, Ryan, and Wellnes (2005) replicated these results in Brazil and Canada. Sheldon et al. (2004) found autonomous regulation to be associated with mental health in four countries. Chirkov and Ryan (2001) studied adolescents in Russia and the United States. In both countries more parent and teacher autonomy supports predicted more self-motivation in school and greater mental health. Lynch et al. (2005) showed at a relationship level that participants from China, the United States, and Russia were more satisfied and vital in relationships that afforded autonomy support. This expanding literature certainly does not support the often-echoed claim that SDT's conception of autonomy does not apply in collectivist or other diverse cultural settings.

The most widely cited study presumably contradicting SDT is that by Iyengar and Lepper (1999), which is frequently portrayed as showing the unimportance of autonomy for Asian American children. In that study it was shown that when children of Asian descent had a goal picked by their mothers, their intrinsic motivation was facilitated, whereas that of European American children was undermined. But in that very study, when an experimenter imposed a goal on participants, both the Asians and Europeans showed the undermining effect. One can dispute whether the functional significance (Deci & Ryan, 1985) of maternal inputs differs as a function of culture, but this evidence nonetheless shows that imposition by an alien influence is problematic across cultures. Oddly, for Iyengar and Lepper's argument to hold that autonomy is not important for Asian Americans, they would have to assume that their participants do not autonomously follow their mothers' choices. To us, it seems more plausible that they deeply identify with the value of listening to parents in a way many European American children may not. Also plausible is that the Asian American children persist at their mothers' goals out of introjection, an internally controlling state that can drive "free-choice" behaviors that are not intrinsically motivated (Ryan et al., 1991). Regardless, Iyengar and Lepper did not consider or measure children's relative autonomy as a mediator of these results. Further, in arguing that Asians were motivated by relatedness, whereas Europeans were motivated by a need for choice, Iyengar and Lepper implicitly pitted autonomy against relatedness, an opposition that has been theoretically and empirically contradicted within SDT (e.g., Ryan & Lynch, 1989) and other perspectives (Kagitçibasi, 1996).

In light of the importance of autonomous regulation for behaviors of all kinds, be they collectivistic or individualistic, mundane or creative, it is not surprising that a growing number of studies confirm the relevance of autonomy in diverse cultures. This does not suggest, however, that research on cultural differences in independence, or in values for relatedness and autonomy, is not important. What it does highlight is the critical need for theorists to be more exacting in applying concepts such as autonomy and independence in cultural and developmental research. Without such care, psychologists end up implying that vast numbers of people in collectivist nations do not need autonomy, a stance that is politically regressive and disempowering.

## CONCLUSIONS

Recent theorists in psychology have forwarded provocative critiques of the constructs of autonomy, choice, and will. Although we believe that those theories and their empirical bases do make a number of important points, we suggest that they in no way undermine a core tenet of self-determination theory, namely, that autonomy is a fundamental human need. Instead, these studies suggest the following: independence is not a universal need; having many options is not a basic need, nor is it even always edifying; nonconscious determination can undermine autonomous functioning, but it need not; and autonomous functions still require a brain.

Claiming autonomy to be a universal, cross-developmental need, of course, leaves us open to, and welcoming of, theoretical and empirical attempts to identify exceptions. At the same time, science requires specification of terms in exacting ways, especially in a field like ours where terms often have multiple lay meanings. While exploiting semantic ambiguities may draw attention to points one wishes to make, a danger is that it adds confusion to the field, and actually delays the solid advance of knowledge and its applications. We do note that no one has a patent on any of these words and all can “choose” how to define them. At the same time, as paradigms compete, it should be by contrasting the true substantive differences in their meanings and predictions.

As SDT-based research has documented the benefits of autonomy and autonomy support in contexts such as families, schools, workplaces, religious institutions, sport teams, clinics, and health care settings, these findings have been used to enhance human potential, reflected in behavioral, relational, and experiential outcomes. Thus, as clinicians, educators, and change agents, we attempt to apply self-determination theory and the empirical evidence it yields in fostering healthy self-regulation and positive mental health. Rather than being an illusion, we conclude from this program of research that autonomy is a salient issue across development, life domains, and cultures and is of central import for personality functioning and wellness. Yet autonomy is also by its very nature a controversial issue that not all paradigms or approaches can accommodate, and thus we have no doubt that it will continue to be a construct whose meaning and significance will be constructively debated.



## REFERENCES

- Amabile, T. M. (1983). *The social psychology of creativity*. New York: Springer-Verlag.
- Assor, A., Roth, G., & Deci, E. L. (2004). The emotional costs of parents' conditional regard: A self-determination theory analysis. *Journal of Personality*, *72*, 47–88.
- Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist*, *44*, 1175–1184.
- Bargh, J. (1997). The automaticity of everyday life. In R. S. Wyer Jr. (Ed.), *The automaticity of everyday life: Advances in social cognition* (Vol. 10, pp 1–61). Mahwah, NJ: Erlbaum.
- Baumeister, R. F., Bratslavsky, E., Muraven, M., & Tice, D. (1998). Ego depletion: Is the active self a limited resource? *Journal of Personality and Social Psychology*, *74*, 1252–1265.
- Bechara, A., Tranel, D., Damasio, H., & Damasio, A. R. (1996). Failure to respond autonomically to anticipated future outcomes following damage to prefrontal cortex. *Cerebral Cortex*, *6*, 215–225.
- Blais, M. R., Sabourin, S., Boucher, C., & Vallerand, R. J. (1990). Toward a motivational model of couple happiness. *Journal of Personality and Social Psychology*, *59*, 1021–1031.
- Bradley, S. J. (2000). *Affect regulation and the development of psychopathology*. New York: The Guilford Press.
- Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology*, *84*, 822–848.
- Chambers, R. A., Taylor, J. R., & Potenza, M. N. (2003). Developmental neuro-circuitry of motivation in adolescence: A critical period of addiction vulnerability. *American Journal of Psychiatry*, *160*, 1041–1052.
- Chirkov, V., & Ryan, R. M. (2001). Parent and teacher autonomy-support in Russian and U. S. adolescents: Common effects on well-being and academic motivation. *Journal of Cross-Cultural Psychology*, *32*, 618–635.
- Chirkov, V., Ryan, R. M., Kim, Y., & Kaplan, U. (2003). Differentiating autonomy from individualism and independence: A self-determination theory perspective on internalization of cultural orientations and well-being. *Journal of Personality and Social Psychology*, *84*, 97–110.
- Chirkov, V. I., Ryan, R. M., & Wellnes, C. (2005). Cultural context and psychological needs in Canada and Brazil: Testing a self-determination approach to internalization of cultural practices, identity and well-being. *Journal of Cross-Cultural Psychology*.
- Cross, S. E., & Gore, J. S. (2003). Cultural models of the self. In M. R. Leary & J. P. Tangney (Eds.), *Handbook of self and identity* (pp. 536–564). New York: Guilford.
- Csikszentmihalyi, M. (1990). *Flow*. New York: Harper.
- de Charms, R. (1968). *Personal causation: The internal affective determinants of behavior*. New York: Academic Press.

- Deci, E. L., Koestner, R., & Ryan, R. M. (1999). A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation. *Psychological Bulletin*, **125**, 627–668.
- Deci, E. L., & Ryan, R. M. (1980). Self-determination theory: When mind mediates behavior. *Journal of Mind and Behavior*, **1**, 33–43.
- Deci, E. L., & Ryan, R. M. (1985). The general causality orientations scale: Self-determination in personality. *Journal of Research in Personality*, **19**, 109–134.
- Deci, E. L., & Ryan, R. M. (1985b). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum.
- Deci, E. L., & Ryan, R. M. (1991). A motivational approach to self: Integration in personality. In R. Dienstbier (Ed.), *Nebraska symposium on motivation: Vol. 38. Perspectives on motivation* (pp. 237–288). Lincoln, NE: University of Nebraska Press.
- Deci, E. L., & Ryan, R. M. (1995). Human autonomy: The basis for true self-esteem. In M. Kernis (Ed.), *Efficacy, agency, and self-esteem* (pp. 31–49). New York: Plenum.
- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, **11**, 227–268.
- Dworkin, G. (1988). *The theory and practice of autonomy*. New York: Cambridge.
- Eisenberger, R., & Cameron, J. (1996). Detrimental effects of reward: Reality of myth? *American Psychologist*, **51**, 1153–1166.
- Ekstrom, L. W. (2005). Autonomy and personal integration. In J. S. Taylor (Ed.), *Personal autonomy: New essays on personal autonomy and its role in contemporary moral philosophy* (pp. 143–161). Cambridge UK: Cambridge University Press.
- Frankfurt, H. (1971). Freedom of the will and the concept of person. *Journal of Philosophy*, **68**, 5–20.
- Frey, B. S., & Stutzer, A. (2002). *Happiness and economics: How the economy and institutions affect human well-being*. Princeton, NJ: Princeton University Press.
- Friedman, M. (2003). *Autonomy, gender, politics*. New York: Oxford University Press.
- Gagné, M., & Deci, E. L. (2005). Self-determination theory and work motivation. *Journal of Organizational Behavior*.
- Gergen, K. J. (1991). *The saturated self*. New York: Basic Books.
- Gough, I., & McGregor, J. A. (Eds.) (in press). *Well-being in developing countries: New approaches and research strategies*. Cambridge: Cambridge University Press.
- Hayamizu, T. (1997). Between intrinsic and extrinsic motivation: Examination of reasons for academic study based on the theory of internalization. *Japanese Psychological Research*, **39**, 98–108.
- Heider, F. (1958). *The psychology of interpersonal relations*. New York: Wiley.
- Hodgins, H. S., Liebeskind, E., & Schwartz, W. (1996). Getting out of hot water: Facework in social predicaments. *Journal of Personality and Social Psychology*, **71**, 300–314.
- Iyengar, S. S., & DeVoe, S. E. (2003). Rethinking the value of choice: Considering cultural mediators of intrinsic motivation. In V. Murphy-Berman &

- J. J. Berman (Eds.), *Nebraska symposium on motivation: Cross-cultural differences in perspectives on self* (Vol. 49, pp. 129–174). Lincoln: University of Nebraska Press.
- Iyengar, S. S., & Lepper, M. R. (1999). Rethinking the value of choice: A cultural perspective on intrinsic motivation. *Journal of Personality and Social Psychology*, **76**, 349–366.
- Iyengar, S. S., & Lepper, M. R. (2000). When choice is demotivating: Can one desire too much of a good thing? *Journal of Personality and Social Psychology*, **79**, 995–1006.
- Jordan, J. V. (1991). The relational self: A new perspective for understanding women's development. In J. Strauss & G. Goethals (Eds.), *The self: Interdisciplinary approaches* (pp. 136–149). Cambridge, MA: Harvard University Press.
- Kagitçibasi, Ç. (1996). The autonomous-relational self: A new synthesis. *European Psychologist*, **1**, 180–186.
- Kasser, T. (2002). *The high price of materialism*. Cambridge, MA: MIT Press.
- Kernis, M. H., & Goldman, B. M. (2005). Authenticity, social motivation, and psychological adjustment. In J. P. Forgas & K. D. Williams (Eds.), *Social motivation: Conscious and unconscious processes*. New York: Cambridge University Press.
- Kim, A. (2004, May). *Investigating self-regulation in Korean students*. Paper presented at the Second International Conference on Self-Determination Theory. Ottawa, Canada.
- Knee, C. R., Lonsbary, C., Canevello, A., & Patrick, H. (2006). Self-determination and conflict in romantic relationships. *Journal of Personality and Social Psychology*.
- Koestner, R., & Losier, G. F. (1996). Distinguishing reactive versus reflective autonomy. *Journal of Personality*, **64**, 465–494.
- Kuhl, J., & Kazen, M. (1994). Self-discrimination and memory: State orientation and false self-ascription of assigned activities. *Journal of Personality and Social Psychology*, **79**, 367–384.
- La Guardia, J. G., Ryan, R. M., Couchman, C. E., & Deci, E. L. (2000). Within-person variation in security of attachment: A self-determination theory perspective on attachment, need fulfillment, and well-being. *Journal of Personality and Social Psychology*, **79**, 367–384.
- Levesque, C., & Brown, K. W. (2005). *Overriding motivational automaticity: Mindfulness as a moderator of the influence of implicit motivation on day-to-day behavior*. Unpublished Manuscript, University of Rochester.
- Levesque, C., & Pelletier, L. G. (2003). On the investigation of primed and chronic autonomous and heteronomous motivational orientations. *Personality and Social Psychology Bulletin*, **29**, 1570–1584.
- Libet, B. (1999). Do we have free will? *Journal of Consciousness Studies*, **6**, 47–57.
- Lynch, M. F., La Guardia, J. G., & Ryan, R. M. (2005). *Big Five traits, autonomy supportive relationships, and culture: A self-determination theory perspective*. Unpublished manuscript, University of Rochester.
- Mackenzie, C., & Stoljar, N. (2000). Autonomy refigured: Feminist perspectives on autonomy, agency, and the social self. In C. Mackenzie & N. Stoljar (Eds.), *Relational autonomy* (pp. 3–31). New York: Oxford University Press.

- Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review*, *92*, 224–253.
- Moller, A., Deci, E. L., & Ryan, R. M. (2006). *Choice and ego-depletion: The moderating role of autonomy*. Unpublished manuscript, University of Rochester.
- Neighbors, C., Victor, N. A., & Knee, C. R. (2002). A motivational model of driving anger and aggression. *Personality and Social Psychology Bulletin*, *28*, 324–335.
- Pfander, A. (1967). *Phenomenology of willing and motivation* (H. Spiegelberg, Trans.). Evanston, IL: Northwestern University Press (Original work published 1908).
- Pinker, S. (2002). *The blank slate: The modern denial of human nature*. New York: Viking.
- Pittman, T. S., Davey, M. E., Alafat, K. A., Wetherill, K. V., & Kramer, N. A. (1980). Informational versus controlling verbal rewards. *Personality and Social Psychology Bulletin*, *6*, 228–233.
- Reis, H. T., Sheldon, K. M., Gable, S. L., Roscoe, J., & Ryan, R. M. (2000). Daily well-being: The role of autonomy, competence, and relatedness. *Personality and Social Psychology Bulletin*, *26*, 419–435.
- Ricoeur, P. (1966). *Freedom and nature: The voluntary and the involuntary* (E. V. Kohak, trans.). Chicago: Northwestern University Press.
- Ryan, R. M. (1993). Agency and organization: Intrinsic motivation, autonomy and the self in psychological development. In J. Jacobs (Ed.), *Nebraska symposium on motivation: Developmental perspectives on motivation* (Vol. 40, pp. 1–56). Lincoln: University of Nebraska Press.
- Ryan, R. M., & Connell, J. P. (1989). Perceived locus of causality and internalization: Examining reasons for acting in two domains. *Journal of Personality and Social Psychology*, *57*, 749–761.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, *55*, 68–78.
- Ryan, R. M., & Deci, E. L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology*, *52*, 141–166.
- Ryan, R. M., & Deci, E. L. (2004). Autonomy is no illusion: Self-determination theory and the empirical study of authenticity, awareness, and will. In J. Greenberg, S. L. Koole, & T. Pyszczynski (Eds.), *Handbook of experimental existential psychology* (pp. 449–479). New York: The Guilford Press.
- Ryan, R. M., Deci, E. L., Grolnick, W. S., & LaGuardia, J. G. (2006). The significance of autonomy and autonomy support in psychological development and psychopathology. In D. Cicchetti & D. Cohen (Eds.), *Developmental psychopathology: Vol. 1: Theory and methods* (2nd ed., 795–849). New York: Wiley.
- Ryan, R. M., Koestner, R., & Deci, E. L. (1991). Varied forms of persistence: When free-choice behavior is not intrinsically motivated. *Motivation and Emotion*, *15*, 185–205.

- Ryan, R. M., & La Guardia, J. G. (1999). Achievement motivation within a pressured society: Intrinsic and extrinsic motivations to learn and the politics of school reform. In T. Urdan (Ed.), *Advances in motivation and achievement* (Vol. 11, pp. 45–85). Greenwich, CT: JAI.
- Ryan, R. M., La Guardia, J. G., Solky-Butzel, J., Chirkov, V., & Kim, Y. (2005). On the interpersonal regulation of emotions: Emotional reliance across gender, relationships, and cultures. *Personal Relationships*, *12*, 145–163.
- Ryan, R. M., & Lynch, J. H. (1989). Emotional autonomy versus detachment: Revisiting the vicissitudes of adolescence and young adulthood. *Child Development*, *60*, 340–356.
- Schwartz, B. (2000). Self-determination: The tyranny of freedom. *American Psychologist*, *55*, 79–88.
- Schwartz, B. (2004). *The paradox of choice: Why more is less*. New York: CCC, Harper Collins.
- Sen, A. (1999). *Development as freedom*. New York: Knopf.
- Sheldon, K. M., Elliot, A. J., Ryan, R. M., Chirkov, V., Kim, Y., & Wu, C., et al. (2004). Self-concordance and subjective well-being in four cultures. *Journal of Cross-Cultural Psychology*, *35*, 209–223.
- Skinner, B. F. (1971). *Beyond freedom and dignity*. New York: Knopf.
- Spence, S. A., & Firth, C. D. (1999). Toward a functional anatomy of volition. *Journal of consciousness studies*, *6*, 11–29.
- Strauss, J., & Ryan, R. M. (1987). Autonomy disturbances in anorexia nervosa. *Journal of Abnormal Psychology*, *96*, 254–258.
- Taylor, J. S. (Ed.) (2005). *Personal autonomy*. New York: Cambridge University Press.
- Utman, C. H. (1997). Performance effects of motivational state: A meta-analysis. *Personality and Social Psychology Review*, *1*, 170–182.
- Walton, M. E., Delvin, J. T., & Rushworth, M. F. S. (2004). Interactions between decision making and performance monitoring within prefrontal cortex. *Nature Neuroscience*, *7*, 1259–1265.
- Wegner, D. (2002). *The illusion of conscious will*. Cambridge, MA: MIT Press.
- Wegner, D., & Wheatley, T. (1999). Apparent mental causation: Sources of the experience of will. *American Psychologist*, *54*, 480–492.
- Wild, J. (1965). Authentic existence: A new approach to “Value Theory.” In J. M. Edie (Ed.), *An invitation to phenomenology* (pp. 59–78). Chicago: Quadrangle.
- Williams, G. C. (2002). Improving patient’s health through supporting the autonomy of patients and providers. In E. L. Deci & R. M. Ryan (Eds.), *Handbook of self-determination research* (pp. 233–254). Rochester, NY: University of Rochester Press.
- Wilson, T. D. (2002). *Strangers to ourselves*. Cambridge, MA: Belknap Press.
- Woo, H. K. H. (1984). *The unseen dimension of wealth*. Freemont, CA: Victoria Press.
- Yamauchi, H., & Tanaka, K. (1998). Relations of autonomy, self-referenced beliefs and self-regulated learning among Japanese children. *Psychological Reports*, *82*, 803–816.

