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Author(s): Edward L. Deci and Richard M. Ryan

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TARGET ARTICLE

The “What” and “Why” of Goal Pursuits: Human Needs and the Self-Determination of Behavior

Edward L. Deci and Richard M. Ryan

Department of Psychology
University of Rochester

Self-determination theory (SDT) maintains that an understanding of human motivation requires a consideration of innate psychological needs for competence, autonomy, and relatedness. We discuss the SDT concept of needs as it relates to previous need theories, emphasizing that needs specify the necessary conditions for psychological growth, integrity, and well-being. This concept of needs leads to the hypotheses that different regulatory processes underlying goal pursuits are differentially associated with effective functioning and well-being and also that different goal contents have different relations to the quality of behavior and mental health, specifically because different regulatory processes and different goal contents are associated with differing degrees of need satisfaction. Social contexts and individual differences that support satisfaction of the basic needs facilitate natural growth processes including intrinsically motivated behavior and integration of extrinsic motivations, whereas those that forestall autonomy, competence, or relatedness are associated with poorer motivation, performance, and well-being. We also discuss the relation of the psychological needs to cultural values, evolutionary processes, and other contemporary motivation theories.

Most contemporary theories of motivation assume that people initiate and persist at behaviors to the extent that they believe the behaviors will lead to desired outcomes or goals. Beginning with the work of Lewin (1936) and Tolman (1932), this premise has led motivation researchers to explore the psychological value people ascribe to goals (e.g., T. Kasser & Ryan, 1996; Vroom, 1964), people's expectations about attaining goals (e.g., Abramson, Seligman, & Teasdale, 1978; Bandura, 1989; Rotter, 1966), and the mechanisms that keep people moving toward selected goals (e.g., Carver & Scheier, 1998).

Whereas initially this approach assumed that any two equally valued goals with the same expectancies for attainment would yield the same quality of performance and affective experience, recent work on goal-directed behavior has begun to distinguish among *types* of goals or outcomes. Researchers have, for example, contrasted ability-development goals with ability-demonstration goals (Dweck, 1986; Nicholls, 1984) and approach goals with avoidance goals (Carver & Scheier, 1998; Elliot & Church, 1997; Higgins, 1996), suggesting that the different

types of goals have different behavioral and affective consequences.

Like these other theories, self-determination theory (SDT; Deci & Ryan, 1980, 1985b, 1991) has differentiated the concept of goal-directed behavior, yet it has taken a very different approach. SDT differentiates the *content* of goals or outcomes and the *regulatory processes* through which the outcomes are pursued, making predictions for different contents and for different processes. Further, it uses the concept of *innate psychological needs* as the basis for integrating the differentiations of goal contents and regulatory processes and the predictions that resulted from those differentiations. Specifically, according to SDT, a critical issue in the effects of goal pursuit and attainment concerns the degree to which people are able to satisfy their basic psychological needs as they pursue and attain their valued outcomes.

The concept of needs was once widely employed in empirical psychology to organize the study of motivation. Although variously defined at the physiological or psychological levels and as innate or learned, the concept of needs specified the *content* of motivation

and provided a substantive basis for the energization and direction of action. Beginning around the 1960s, however, the dramatic shift toward cognitive theories led to the concept of needs being repudiated and replaced by the concept of goals as the dominant motivational concept. The focus became the processes of goal selection and pursuit rather than the content of the goals being selected and pursued. The concept of valence (or psychological value) of outcomes was defined functionally (and thus was not related to need satisfaction), much as the concept of reinforcement had been defined functionally in operant psychology (B. F. Skinner, 1953), ignoring the needs that had provided the underpinning of reinforcements in drive theories (e.g., Hull, 1943).

Since the time of the shift toward cognitive theories, most motivation theorists remained unwilling to consider needs, focusing instead on goal-related efficacy. SDT has, in contrast, maintained that a full understanding not only of goal-directed behavior, but also of psychological development and well-being, cannot be achieved without addressing the needs that give goals their psychological potency and that influence which regulatory processes direct people's goal pursuits. Specifically, in SDT, three psychological needs—for competence, relatedness, and autonomy—are considered essential for understanding the *what* (i.e., content) and *why* (i.e., process) of goal pursuits. Before outlining the SDT perspective on the content and process of goal-directed behavior, however, we begin with an historical consideration of the concept of needs as a foundation for our subsequent discussion.

The Concept of Needs

Early Needs Theories

Two very different intellectual traditions in the empirical psychology of motivation employed the concept of needs. In experimental psychology, Hull (1943) suggested that the task of psychology is to understand molar behavior by linking it to the organism's primary needs and the conditions in the environment relevant to them. He specified a set of innate physiological needs (e.g., for food, water, sex) that are based in non-nervous-system tissue deficits, give rise to drive states, push the organism into action, and must be satisfied for the organism to remain healthy. The drive states, when reduced, produce learning by linking drive stimulations to the responses that led to drive reduction (e.g., Hull, 1943; Spence, 1956). Drive states and the stimulus-response associations were used to predict subsequent behavior. This tradition produced a rich array of findings based on the drive theory assumptions, but among its shortcomings was that it could not provide a meaningful account of a large class

of behaviors such as curious exploration, investigatory manipulation, vigorous play, and other spontaneous activities that had no apparent ties to the dynamics of drive reduction. Indeed, it was partly the drive theorists' attempts to account for such behaviors that gave rise to the recognition of intrinsic motivation (see White, 1959) and ultimately led to specification of the psychological needs.

The second tradition focusing on needs stems from the work of Murray (1938). Murray addressed needs at the psychological rather than physiological level and viewed them primarily as acquired rather than innate. In this approach the concept of needs was very broadly construed, as we see here in Murray's oft-cited definition:

A need is a construct (a convenient fiction or hypothetical concept) that stands for a force (the physico-chemical nature of which is unknown) in the brain region, a force that organizes perception, apperception, intellection, conation and action in such a way as to transform in a certain direction an existing, unsatisfying situation. (pp. 123–124).

Indeed, this definition is so broad that one could substitute terms like motive, desire, or goal for need without losing any meaning. By this definition, almost anything that moves one to action is a need, a fact that is highlighted by Murray's inclusion of such psychological needs as abasement (self-degradation), acquisitiveness (greed), and dominance within his extensive list. We maintain, however, that, although motives such as these may energize action, they are certainly not needs in either the Hullian or the SDT sense of specifying necessary nutrients for healthy functioning. Rather, Murray's needs represent an array of salient motives whose pursuit may or may not conduce to optimal functioning: motives that reflect ambient social values and the dynamics of their transmission.

In the Murray tradition the focus of empirical studies has been on individual differences in need strength, particularly those for achievement, power, and affiliation. These individual differences are the foci of thematic (or implicit) and questionnaire (or explicit) methods of assessment (Ryan & Manly, in press) and are used as the basis for predicting affective and behavioral outcomes (e.g., McAdams, 1989; McClelland, 1985).

The Nature of Needs in SDT

To explicate the meaning of needs in SDT, we consider not only the theoretical concept but also the organismic-dialectical metatheory that underlies it. In so doing, we contrast SDT with theories in the traditions of Hull and Murray. Although these theories do not

have a strong presence in current motivation research, they provide a useful contrast with SDT because, unlike most current theories, they are macrotheories of motivation that explicitly considered the concept of needs and clearly specified their metatheoretical foundations. Later in the article we examine the relation of SDT to a number of current theories.

As in the Hullian tradition, we define *needs* as innate, organismic necessities rather than acquired motives, and as in the Murray tradition, we define needs at the psychological rather than physiological level. Thus, in SDT, needs specify *innate psychological nutrients that are essential for ongoing psychological growth, integrity, and well-being*. As noted, we identified three, the needs for competence, relatedness, and autonomy.

This definition can be considered in organismic and functional terms. It assumes a fundamental human trajectory toward vitality, integration, and health, and further assumes that this organismic tendency will be actualized so long as the necessary and appropriate nutrients are attainable but will give way to the emergence of nonoptimal psychological outcomes under conditions of threat or deprivation. In other words, human needs specify the necessary conditions for psychological health or well-being and their satisfaction is thus hypothesized to be associated with the most effective functioning. A further claim is that each of these three needs plays a necessary part in optimal development so that none can be thwarted or neglected without significant negative consequences. This claim cannot be made for most psychological needs that were studied, for example, in the Murray tradition, because there are countless instances in which people achieve psychological integrity and health without having the so-called needs for power, acquisitiveness, or self-abasement well satisfied. However, we assert that there are not instances of optimal, healthy development in which a need for autonomy, relatedness, or competence was neglected, whether or not the individuals consciously valued these needs. In short, psychological health requires satisfaction of all three needs; one or two are not enough.

Functionally, we expect to observe optimal development and well-being under facilitating conditions that support need satisfaction, and to observe degradation or ill-being under conditions that thwart basic need satisfaction. Just as one can conclude that plants need water by noting that they flourish when they are hydrated but that impoverished growth and, ultimately, a breakdown of integrity results when they are systematically deprived of water, SDT maintains that a psychological need can be identified by observing that positive psychological consequences result from conditions that allow its satisfaction and negative consequences accrue in situations that thwart it. Accordingly, if motives or goals were not linked di-

rectly to basic needs, their fulfillment versus thwarting would not be expected to result invariantly in the enhancement versus diminishment of growth and well-being.

Our definition is congruent with Hullian thought in that both approaches specify a set of innate or essential nutrients and with Murray's personologic approach in that his and ours focus at the psychological level, but our approach is quite different from those previous traditions because it is embedded in an organismic-dialectical metatheory. Accordingly, as we will show, the concept is used to address different issues and to provide different types of interpretations.

The organismic dialectic. The starting point for SDT is the postulate that humans are active, growth-oriented organisms who are naturally inclined toward integration of their psychic elements into a unified sense of self and integration of themselves into larger social structures. In other words, SDT suggests that it is part of the adaptive design of the human organism to engage interesting activities, to exercise capacities, to pursue connectedness in social groups, and to integrate intrapsychic and interpersonal experiences into a relative unity.

Our organismic-dialectical perspective further proposes that these natural organismic activities and the integrative propensities that coordinate them require fundamental nutrients—namely, ambient supports for experiencing competence, relatedness, and autonomy. As such, the natural processes such as intrinsic motivation, integration of extrinsic regulations, and movement toward well-being are theorized to operate optimally only to the extent that the nutrients are immediately present, or, alternatively, to the extent that the individual has sufficient inner resources to find or construct the necessary nourishment. To the degree that these organismic processes are hindered by nonfavorable conditions—specifically when one's context is excessively controlling, overchallenging, or rejecting—they will, to that degree, be supplanted by alternative, often defensive or self-protective processes, which no doubt also have functional utility under nonsupportive circumstances. Such processes would include, for example, the capacity to compartmentalize rather than integrate psychological structures, the tendency to withdraw concern for others and focus on oneself, or, in more extreme cases, to engage in psychological withdrawal or antisocial activity as compensatory motives for unfulfilled needs.

Accordingly, innate psychological needs for competence, relatedness, and autonomy concern the deep structure of the human psyche, for they refer to innate and life-span tendencies toward achieving effectiveness, connectedness, and coherence. The presence versus absence of environmental conditions that allow

satisfaction of these basic needs—in people's immediate situations and in their developmental histories—is thus a key predictor of whether or not people will display vitality and mental health. As we argue later, the existence of these basic psychological needs and their phenomenological salience appear to yield considerable adaptive advantage at the level of individual and group selection (Ryan, Kuhl, & Deci, 1997). Furthermore, basic needs play an essential role in cultural transmission, helping to account for how memes are assimilated and maintained in and across diverse human groups (Inghilleri, 1999).

A direct corollary of the SDT perspective is that people will tend to pursue goals, domains, and relationships that allow or support their need satisfaction. To the extent that they are successful in finding such opportunities, they will experience positive psychological outcomes.

Needs in SDT versus drive theories. We, like drive theorists, consider needs to be innate rather than learned and therefore to give motivational content to life. However, although we acknowledge physiological drives, we give primacy to the core psychological needs in our exploration of issues such as human learning, interpersonal relations, and the general mastery and management of people's physical and social environments. By positing a set of basic psychological needs, SDT specifies psychological elements of human nature, much as Hull's work specified physiological elements of human nature. Further, we suggest that the drive-based behaviors that Hull (as well as Freud) described are typically regulated by psychological processes and therefore interface with the issues of autonomy, competence, and relatedness.

Our focus at the psychological level within the organismic-dialectical metatheory leads to a set of very important differences between our approach and that of drive theories. From the latter perspective, needs are understood as physiological deficits that disturb the organism's quiescence and push the organism to behave in ways that were learned because they satisfied the needs and returned the organism to quiescence. Thus, in drive theories, the set point of the human organism is quiescence or passivity; need satisfaction is a process of replenishing deficiencies; and the purpose of behavior is need satisfaction. By contrast, in SDT, the set point is growth-oriented activity. That is, rather than viewing people as passively waiting for a disequilibrium, we view them as naturally inclined to act on their inner and outer environments, engage activities that interest them, and move toward personal and interpersonal coherence. Thus, they do not have to be pushed or prodded to act. Further, and importantly, their behavior does not have to be aimed at need satisfaction *per se*, it may simply be focused on an interesting ac-

tivity or an important goal if they are in a context that allows need satisfaction. If, however, need satisfaction is not forthcoming while they are acting, nonoptimal or dysfunctional consequences typically follow. Consider several important implications of this viewpoint.

From the perspective of drive theory, all behaviors are based in drive reduction processes; in other words, the functional aim of all behavior can be understood as need satisfaction. Hungry people act to get food, pained people act to get relief, and all behavior can be traced back to disequilibria. From the perspective of SDT, however, innate life processes and their accompanying behaviors can occur naturally, without the prod of a need deficit. Much as Piaget (1971) suggested that it is inherent in the assimilation schema to function, we suggest that it is inherent in people's nature to act in the direction of increased psychological differentiation and integration in terms of their capacities, their valuing processes, and their social connectedness. These inherent integrative tendencies require the nutriments of need satisfaction to be sustained and for positive consequences to follow, but need satisfaction is not necessarily the aim of these actions. Thus, for example, it is adaptive for children to play, but they do not play to feel competent. Similarly, curiosity-based exploration, openness to the sensory experiences of nature, and assimilation of values extant in one's social milieu—all natural activities—require the nutriments of basic need satisfaction to operate optimally, but these activities are not necessarily (indeed they may seldom be) consciously intended to satisfy the basic needs.

Of course, we recognize that many behaviors are specifically aimed at satisfaction of the basic needs, particularly when little satisfaction has been forthcoming. When lonely, people may explicitly seek out companionship; when controlled, people may explicitly seek out autonomy; and when feeling ineffective, people may explicitly work to become more competent. But, when people are experiencing reasonable need satisfaction, they will not necessarily be behaving specifically to satisfy the needs; rather, they will be doing what they find interesting or important. As we argue later, finding an activity either interesting (intrinsic motivation) or important (well-internalized extrinsic motivation) is influenced by prior experiences of need satisfaction versus thwarting, but doing what one finds interesting or important does not have the explicit intent of satisfying the basic needs in the immediate situation. A man who, in the evening, sits at the keyboard and begins to play a piece of music, may become lost in its beauty and experience great pleasure. He would not experience the pleasure if coerced to play, or if he felt unable to master the music. Thus, need satisfaction, which in this case means experiences of autonomy and competence, is necessary for the enjoyment of the activity, but his explicit purpose in playing the music is

not likely to be need satisfaction. He would be doing what interests him, and he would experience spontaneous pleasure as long as the activity was self-organizing and the task appropriately challenging.

There is another very important way that psychological needs differ from physiological needs. When a physiological need is thwarted, people typically step up their efforts to satisfy it. Indeed, the longer they are deprived, the more salient and consuming the need becomes. When hungry enough, people are likely to think of little else and to engage in few behaviors that are not intended to satisfy the hunger. With psychological needs, lack of satisfaction may also tend to focus people's efforts on getting the needs satisfied, but with psychological need thwarting people more readily make accommodations that lessen their *direct* attempts to satisfy needs. For example, thwarting of psychological needs can promote the development of defenses and need substitutes that may, over time, lead to further thwarting of need satisfaction, as, for instance, when a woman becomes self-controlling in her eating behaviors against the backdrop of having been controlled by the contingent regard and evaluations of significant others (Strauss & Ryan, 1987). Rather than staying on the natural track toward healthy development, people may instead become controlled (either complying or defying) or amotivated (either being out of control or acting helpless). And these responses can, as we will see later, become self-perpetuating. According to SDT, however, such defensive adaptations, regardless of whether individuals claim to value them, will have significant negative consequences for the individuals' vitality, integrity, and health.

Needs in SDT versus personality theories. By defining needs at the psychological level we suggested a commonality between SDT and some personality theories that use the concept of needs. However, because empirically based personality theories that investigate needs (e.g., McClelland, 1985; Murray, 1938) tend to view them as learned, our conception of needs is, in some ways, closer to that of the less empirically derived theories that view psychological needs as innate (e.g., Kohut, 1977; Maslow, 1943).

The most direct predecessor of our approach to psychological needs is the work of White (1959) who asserted that an understanding of behavior and development requires that drive motivation be supplemented with a different type of innate motivation, one conceptualized at the psychological level. White spoke of a *primary propensity* for competence, suggesting that there is an energy source in humans (and other mammals) that operates between episodes of homeostatic crisis and does not follow deficit principles. For White, this energy source was a direct manifestation of a deeply structured effectance-focused

motivation—a propensity to have an effect on the environment as well as to attain valued outcomes within it. Although White used the term *motive* to describe this motivational propensity, his formulation was fully consistent with our definition of a *psychological need*. Indeed, as noted, we consider competence or effectance to be one of the three fundamental psychological needs that can energize human activity and must be satisfied for long-term psychological health.

As also noted, we further proposed the innate needs for relatedness and autonomy. Relatedness refers to the desire to feel connected to others—to love and care, and to be loved and cared for (Baumeister & Leary, 1995; Bowlby, 1958; Harlow, 1958; Ryan, 1993). Like us, Baumeister and Leary argued that relatedness is a fundamental need, and the idea of relatedness as a need is central to, although not widely discussed in the field of attachment (Ainsworth, Blehar, Waters, & Wall, 1978). Indeed, many empirically based theories assume a desire or tendency for relatedness even if they do not explicitly formulate it as a need.

Autonomy refers to volition—the organismic desire to self-organize experience and behavior and to have activity be concordant with one's integrated sense of self (Angyal, 1965; deCharms, 1968; Deci, 1980; Ryan & Connell, 1989; Sheldon & Elliot, 1999). The concept of autonomy is far less prevalent in empirical psychology than are the ideas of competence and relatedness. And indeed, when it is discussed it is often incorrectly equated with the ideas of internal locus of control, independence, or individualism (see, e.g., Deci, Koestner, & Ryan, 1999b; Ryan, 1995). For us, however, autonomy concerns the experience of integration and freedom, and it is an essential aspect of healthy human functioning.

According to SDT, these three needs can be satisfied while engaging in a wide variety of behaviors that may differ among individuals and be differentially manifest in different cultures, but in any case their satisfaction is essential for the healthy development and well-being of all individuals regardless of culture.

Defining psychological needs as inherent to human nature has led to a research focus that is very different from that of other empirical personality theorists such as McClelland (1965) who maintained that needs are largely learned and thus differ in strength as a function of that learning. Specifically, McClelland (1985) and others assessed individual differences in need strength and used that as the primary basis for predicting behavior. Research in that tradition predicted variation in need strengths from the social conditions theorized to created them, and then, even more importantly, used need strengths to predict various outcomes. Researchers, for example, examined the consequences of different levels of achievement motivation (Atkinson, 1958) and power motivation (Winter, 1973), and the outcomes that result from different combinations of

need strengths. In so doing they have not made any implicit assumption that need satisfaction would be associated with healthier functioning.

We, on the other hand, viewing needs as universal, innate, and essential for well-being, do not generally focus on variation in need strength. Instead, our research has focused primarily on an examination of the degree to which individuals experience basic psychological need satisfaction in different social contexts and of the consequences of various degrees of satisfaction. We do assume that there are important individual differences that affect the degree to which people will experience need satisfaction in different contexts, so we use both characteristics of the social environment and individual differences to predict people's need satisfaction and, in turn, the quality of their experience, behavior, and health. However, these individual differences do not concern need strength. Rather, the type of individual-difference concepts used in SDT and other theories that assume innate, psychological needs are regulatory or interactive styles. These are regarded as outcomes of the ongoing dialectic between people's needs and their ambient social contexts that have either fulfilled or frustrated the needs, and they describe the way people orient toward the social environment and thus affect its potential for providing them further need satisfaction. In SDT, we refer to these as *causality orientations* (Deci & Ryan, 1985a) at the broadest level of generality, and as *regulatory styles* (Ryan & Connell, 1989) at a more domain-specific level of generality (see also Vallerand, 1997).

In selecting this focus for examining individual differences, we do not maintain that there are no differences in need strength. Rather, we suggest that a focus on the strength of innate needs does not get at the issues we consider most important. In this regard, there is another similarity between our approach and that of the physiological-need theories. Just as it is probable that people have innate differences in the strength of their need for food, it is as well probable that there are innate differences in their needs for competence. Human characteristics tend to be normally distributed. Nonetheless, psychologists do not typically focus on innate individual differences in hunger, instead treating such differences as givens and focusing instead on the effects of food deprivation versus availability on consumptive patterns. From that perspective, the critical issue is not to identify innate differences in the strength of hunger, but rather to see how hunger has been affected by the interaction of the basic need for food and the environment in which it is or is not supported.

Similarly, although there may be individual differences in the strength of people's needs for competence, autonomy, and relatedness, we believe that these innate differences are not the most fruitful place to focus attention. Instead, greater benefits will be reaped from focusing on individual differences in motivational ori-

entations and in the importance of goal contents, these being individual differences that result from the interaction of the basic needs with the social world—that is, from past experiences of need satisfaction versus thwarting. As with the case of an unusually strong desire for food, we would consider an unusually strong desire to be with other people not to be a reflection of a strong innate need for relatedness but instead to be a result, in part at least, of previous experiences in which the basic needs were thwarted. Similarly, an unusually strong desire to be in control of a situation would be viewed as resulting not from a strong need for competence or autonomy but rather from experiences of those needs being thwarted. Like an unusually strong desire for food, an unusually strong desire to be in control is likely to be compensatory.

Herein, lies one of the most important implications of proposing innate needs. They are the basis for—indeed, they require—dynamic theorizing that links varied phenotypic desires and goals to underlying needs that the person may not even be directly aware of at the time. Without the concept of innate needs, all desires are equal in functional importance if they are equal in strength. In other words, every set of closely related behaviors would have its own need (e.g., achievement behaviors would imply a need for achievement), and there would be no basis for predicting the qualities of performance or the degree of well-being that would be associated with different ones of these so-called needs. The concept of basic needs, in contrast, implies that some desires are linked to or catalyzed by our psychological design, as it were, whereas others are not. These others, often being derivative or compensatory, can be the by-products of past need thwarting, and, as defensive adaptations, they may even form the basis for future need thwarting.

Needs, Goals, and Regulatory Processes

The specification by SDT of the three fundamental needs for competence, relatedness, and autonomy was not simply an assumptive or a priori process but instead emerged from inductive and deductive empirical processes. We found that without the concept of needs we were unable to provide a psychologically meaningful interpretation and integration of a diverse set of research results in the areas of *intrinsic motivation*, which we consider to be a basic, lifelong psychological growth function (Deci & Ryan, 1980), and *internalization*, which we consider to be an essential aspect of psychological integrity and social cohesion (Ryan, Connell, & Deci, 1985). We now review the research on intrinsic motivation that led to the postulate of psychological needs, and then we move on to review the research on internalization, discussing its relevance to

needs. Then, having defined needs as essential nutrients for growth and integrity, we proceed to research which has supported the view that satisfaction of these three needs is, indeed, associated with *psychological well-being*, whereas failure to satisfy the needs is associated with deficits in well-being and the development of need substitutes. Accordingly, we now address those three areas of research—those concerned with growth, integrity, and well-being, respectively—focusing on the three needs as the basis for linking the social contextual and individual difference antecedents to the growth, integrity, and well-being outcomes.

Psychological Needs and Intrinsic Motivation

In the early 1970s, when operant theory was still a relatively strong force in empirical psychology, a few investigators began to explore the concept of intrinsic motivation (Deci, 1971, 1972a, 1972b; Kruglanski, Friedman, & Zeevi, 1971; Lepper, Greene, & Nisbett, 1973). Intrinsically motivated activities were defined as those that individuals find interesting and would do in the absence of operationally separable consequences. The concept of intrinsic motivation fit with White's (1959) proposition that people often engage in activities simply to experience efficacy or competence, and with deCharms's (1968) assertion that people have a primary motivational propensity to feel like causal agents with respect to their own actions. Thus, Deci (1975) proposed that intrinsically motivated behaviors are based in people's needs to feel *competent and self-determined*.

In that early work, one finds two strands to the definition of intrinsic motivation, which can be viewed as reactions to the two dominant behavioral theories of that time. In response to Skinner's (1953) claim that all learned behaviors are a function of reinforcements, one strand of the definition emphasized that intrinsically motivated behaviors do not depend on reinforcements—that is, they do not require operationally separable consequences—because the doing of an interesting activity is itself intrinsically rewarding. In response to Hull's (1943) claim that all acquired behaviors derive from satisfaction of basic *physiological* needs, the other strand of the definition emphasized that intrinsically motivated behaviors are a function of basic *psychological* needs. These two strands to the definition are complementary: The idea that some behaviors are interesting and do not require reinforcements provided useful operational definitions of intrinsically motivated behaviors (Deci, 1971), and the idea of psychological needs gave content to the motivational processes involved with the maintenance of this important class of behaviors. Still, having these two foci has led to some confusion about whether in-

terest or psychological needs is the more critical defining characteristic of intrinsic motivation.

Consider the following: The postulate of intrinsic motivation begins with a proactive organism; it presupposes that humans are naturally active and that there are natural tendencies toward development that require nutrients to function effectively. In particular, *intrinsic motivation* concerns active engagement with tasks that people find interesting and that, in turn, promote growth. Such activities are characterized by novelty, or what Berlyne (1971) called "collative stimulus properties," and by optimal challenge (Csikszentmihalyi, 1975; Danner & Lonky, 1981; Deci, 1975). However, this active engagement, this involvement and commitment with interesting activities, requires the nutrients of need fulfillment, and, indeed, people will become more or less interested in activities as a function of the degree to which they experience need satisfaction while engaging in those activities. Thus, experiences of competence and autonomy are essential for intrinsic motivation and interest, but the needs for competence and autonomy do not provide a sufficient definition of intrinsic motivation. Intrinsically motivated activities are not necessarily directed at satisfaction of these needs per se, and behaviors that are directed at satisfaction of these needs are not necessarily intrinsically motivated. Intrinsically motivated behaviors are those that are freely engaged out of interest without the necessity of separable consequences, and, to be maintained, they require satisfaction of the needs for autonomy and competence.

Thus, a primary function served by specification of the needs for autonomy and competence (with respect to intrinsic motivation) is that it has allowed prediction of the social circumstances and task characteristics that enhance versus diminish intrinsic motivation. The overarching hypothesis that has guided this work is that intrinsic motivation will be facilitated by conditions that conduce toward psychological need satisfaction, whereas undermining of intrinsic motivation will result when conditions tend to thwart need satisfaction. Because various studies confirmed that intrinsic motivation is associated with better learning, performance, and well-being (e.g., Benware & Deci, 1984; Deci, Schwartz, Sheinman, & Ryan, 1981; Grolnick & Ryan, 1987; Valas & Sovik, 1993), considerable attention has been given to investigations of the conditions that undermine versus enhance intrinsic motivation.

Intrinsic Motivation and Autonomy

Initial experiments showed that monetary rewards undermined people's intrinsic motivation leading to a level of postreward behavior that was below baseline (Deci, 1971, 1972b). These experiments supported the view that an understanding of human motivation re-

quires a consideration of motivational processes other than just reinforcement and further highlighted a potential antagonism between reinforcement and this other type of motivation.

In discussing the psychological meaning of intrinsic motivation and its undermining by extrinsic rewards, Deci (1975) suggested that intrinsically motivated behaviors represent the prototype of self-determined activities: They are activities that people do naturally and spontaneously when they feel free to follow their inner interests. Such activities have what deCharms (1968), extending a concept introduced by Heider (1958), referred to as an internal perceived locus of causality (I-PLOC). As studies by Deci and others (e.g., Lepper et al., 1973) suggested, when extrinsic rewards are introduced for doing an intrinsically interesting activity, people tend to feel controlled by the rewards, prompting a shift in the perceived locus of causality for the behavior from internal to external. People feel less like origins of their behavior and thus display less intrinsic motivation. Although this phenomenon remains controversial, it has been firmly established and widely replicated. Indeed, a recent meta-analysis of 128 studies spanning 3 decades confirmed that not only monetary rewards, but also all contingent tangible rewards significantly undermined intrinsic motivation (Deci, Koestner, & Ryan, 1999a). Parenthetically, this meta-analysis repudiated a widely cited earlier meta-analysis by behaviorists Eisenberger and Cameron (1996) who claimed to show that the undermining effect of rewards was largely a myth, but whose methods and conclusions turned out to be fatally flawed.

Additional studies supported the view that autonomy is essential to intrinsic motivation by showing that other events such as threats (Deci & Cascio, 1972), surveillance (Lepper & Greene, 1975), evaluation (Harackiewicz, Manderlink, & Sansone, 1984), and deadlines (Amabile, DeJong, & Lepper, 1976) also led to the undermining of intrinsic motivation, presumably because they also prompted a shift toward a more external perceived locus of causality (E-PLOC). In contrast, providing choice (Zuckerman, Porac, Lathin, Smith, & Deci, 1978) and acknowledging people's inner experience (Koestner, Ryan, Bernieri, & Holt, 1984) prompted more of an I-PLOC, enhanced intrinsic motivation, and augmented people's confidence in their performance (Tafarodi, Milne, & Smith, 1999). Subsequent studies indicated that events such as evaluations, rewards, and choice, which had been shown to affect intrinsic motivation in reliable ways, also had corresponding effects on creativity, cognitive flexibility, and conceptual learning. For example, rewards and evaluations were found to decrease creativity (Amabile, 1982), complex problem solving (McGraw & McCullers, 1979), and deep conceptual processing of information (Grolnick & Ryan, 1987).

Although the idea of a shift in perceived locus of causality (PLOC) was descriptively useful with respect to the changes in intrinsic motivation and effective performance, there was still the deeper question of why PLOC would have such a significant impact on motivation and behavior. Deci and Ryan (1980) tied PLOC to people's need to feel autonomous, suggesting that contextual events affect intrinsic motivation and the quality of functioning because they influence the extent to which people experience autonomy while engaged in an activity. Motivational strategies such as rewards and threats undermine autonomy and thus lead to nonoptimal outcomes such as decreased intrinsic motivation, less creativity, and poorer problem solving. In contrast, providing choice and acknowledging feelings can enhance the sense of self-initiation—of being an origin (deCharms, 1968)—thus providing satisfaction of the need for autonomy and resulting in more positive outcomes.

Some recent intrinsic motivation studies show the mediating role of perceived autonomy. For example, an experiment by Reeve and Deci (1996) examined the effects of competition within a controlling versus noncontrolling setting on participants' intrinsic motivation for puzzle solving. Results indicated not only that pressuring people to win by establishing a competition within a controlling context led to less intrinsic motivation than competition within a noncontrolling context, but also that participants' perceptions of their own autonomy mediated this effect.

Field studies in schools (e.g., Deci, Schwartz et al., 1981; Ryan & Grolnick, 1986) and work organizations (Deci, Connell, & Ryan, 1989) complemented the laboratory experiments by showing in real-world settings that providing autonomy support, relative to control, was associated with more positive outcomes, including greater intrinsic motivation, increased satisfaction, and enhanced well-being.

Intrinsic Motivation and Competence

Other early experiments showed that positive feedback enhanced intrinsic motivation relative to no feedback (Boggiano & Ruble, 1979; Deci, 1971) and that negative feedback decreased intrinsic motivation relative to no feedback (Deci & Cascio, 1972). Deci and Ryan (1980) linked these results to the need for competence (White, 1959), suggesting that events such as positive feedback that signify effectance provide satisfaction of the need for competence, thus enhancing intrinsic motivation, whereas events such as negative feedback that convey ineffectance tend to thwart the need for competence and thus undermine intrinsic motivation. A study by Vallerand and Reid (1984) confirmed that felt competence mediated the

effects of positive versus negative feedback on intrinsic motivation.

Additional studies concerned with performance and positive feedback revealed that positive feedback has its enhancement effect on intrinsic motivation only when individuals feel responsible for the competent performance (Fisher, 1978) or when it is provided in a way that does not eclipse their feelings of autonomy (Ryan, 1982). Thus, it appears that the optimal circumstances for intrinsic motivation are those that allow satisfaction of the needs for autonomy and competence, circumstances that we label *informational* (Deci & Ryan, 1980, 1985b). More specifically, we suggest that whereas perceived competence is necessary for any type of motivation, perceived autonomy is required for the motivation to be intrinsic.

To summarize, intrinsic motivation involves people freely engaging in activities that they find interesting, that provide novelty and optimal challenge. Research on intrinsic motivation for initially interesting activities has shown reliably that: (a) events such as rewards that foster an E-PLOC tend to undermine intrinsic motivation, whereas events such as choice that foster an I-PLOC tend to enhance intrinsic motivation; (b) events such as negative feedback that foster perceived incompetence tend to undermine intrinsic motivation, whereas events such as positive feedback that foster perceived competence tend to enhance intrinsic motivation, although people must feel responsible for the competent performance in order for perceived competence to have positive effects on intrinsic motivation. Thus, the concept of supporting versus thwarting fulfillment of basic psychological needs for autonomy and competence worked well to provide an integrated account of this network of empirical results.

Intrinsic Motivation and Relatedness

Although autonomy and competence have been found to be the most powerful influences on intrinsic motivation, theory and research suggest that relatedness also plays a role, albeit a more distal one, in the maintenance of intrinsic motivation. This became evident, for example, in the serendipitous finding that when children worked on an interesting activity in the presence of an adult experimenter who ignored their attempts to interact, the children displayed a very low level of intrinsic motivation (Anderson, Manoogian, & Reznick, 1976). The idea that relatedness is important for intrinsic motivation is also implicit in attachment theory (Bowlby, 1979). During infancy, intrinsic motivation is observable as exploratory behavior, and attachment theorists suggested that exploration is more robust when infants are securely attached to a parent. Studies of mothers and their young children show that maternal autonomy support as well as the security of

attachment presumed to be fostered by it (Bretherton, 1987) are both associated with exploratory behaviors (e.g., Frodi, Bridges, & Grolnick, 1985).

Indeed, across the life span, SDT hypothesizes that intrinsic motivation will be more likely to flourish in contexts characterized by a sense of secure relatedness (Ryan & La Guardia, 2000). For example, Ryan and Grolnick (1986) and Ryan, Stiller, and Lynch (1994) showed greater intrinsic motivation in students who experienced their teachers as warm and caring. Nonetheless, we believe that there are situations in which relatedness is less central to intrinsic motivation than autonomy and competence. People often engage in intrinsically motivated behaviors (e.g., playing solitaire, hiking) in isolation, suggesting that relational supports may not be necessary as proximal factors in maintaining intrinsic motivation. Instead, a secure relational base appears to provide a needed backdrop—a distal support—for intrinsic motivation, a sense of security that makes the expression of this innate growth tendency more likely and more robust.

After more than a decade of detailing the social-contextual factors that enhance versus diminish intrinsic motivation by allowing versus thwarting satisfaction of the needs for competence and autonomy, work guided by SDT turned to a fuller consideration of the concept of extrinsic motivation. Until that point, extrinsic motivation had been studied primarily in terms of how it affected intrinsic motivation, being viewed by many as invariantly controlling and thus as invariantly antagonistic to intrinsic motivation (e.g., deCharms, 1968). We hypothesized, however, that extrinsically motivated behaviors are not invariantly controlled but, instead, can vary in the degree to which they are self-determined versus controlled. To support that hypothesis we formulated a more differentiated conception of extrinsic motivation, which we built around the concept of internalization.

The Internalization of Extrinsic Motivation: Needs and Integrated Self-Regulation

Numerous theories utilize the concept of internalization as a central process in socialization (Kelman, 1958; Lepper, 1983; Meissner, 1988; Schafer, 1968) providing differing perspectives that range from internalization being something that gets done to individuals by the socializing environment (e.g., Mead, 1934) to something that represents the individual's active transformation of external regulations into inner values (Ryan, 1993; Schafer, 1968).

SDT, with its organismic-dialectical metatheory, proposes that, like intrinsic motivation, *internalization* is an active, natural process in which individuals attempt to transform socially sanctioned mores or re-

quests into personally endorsed values and self-regulations (Ryan et al., 1985). It is the means through which individuals assimilate and reconstitute formerly external regulations so the individuals can be self-determined while enacting them. When the internalization process functions optimally, people will identify with the importance of social regulations, assimilate them into their integrated sense of self, and thus fully accept them as their own. In doing so, they will become more integrated not only intrapsychically, but also socially. However, when the internalization process is forestalled, regulations and values may either remain external or be only partially internalized to form introjects or unintegrated identifications. To differing degrees, these forms of regulation—external, introjected, and identified—represent less than fully self-determined behaving. We consider each of these types of regulation in turn.

External regulation. This is the classic case of extrinsic motivation in which people's behavior is controlled by specific external contingencies. People behave to attain a desired consequence such as tangible rewards or to avoid a threatened punishment. This, in essence, is the only type of regulation recognized in operant theory (e.g., B. F. Skinner, 1953), and it is a type of extrinsic motivation that has been extensively examined and found to be undermining of intrinsic motivation (Deci et al., 1999a). In SDT, external regulation is considered controlling, and externally regulated behaviors are predicted to be contingency dependent in that they show poor maintenance and transfer once contingencies are withdrawn (Deci & Ryan, 1985b).

Introjection. This entails individuals' taking in external regulations and maintaining them in a form that is relatively isomorphic with the external regulations (Ryan & Connell, 1989). Fittingly, Perls (1973) described introjection as swallowing regulations whole without digesting them. Whereas with external regulation the control of behavior comes from contingent consequences that are administered by others, with introjected regulation the contingent consequences are administered by the individuals to themselves. The prototypic examples are contingent self-worth (pride) or threats of guilt and shame. Introjection is often manifested as ego involvements (Ryan, 1982), public self-consciousness (Plant & Ryan, 1985), or false self-ascriptions (Kuhl & Kazen, 1994). Introjection represents a partial internalization in which regulations are in the person but have not really become part of the integrated set of motivations, cognitions, and affects that constitute the *self*. Because introjected regulations have not been assimilated to the self, the resulting behaviors are not self-determined. As such, introjected

regulations are particularly interesting because these regulations are within the person, but still relatively external to the self. Unlike external regulations that have poor maintenance and transfer, introjected regulations have been partially internalized and are thus more likely than external regulations to be maintained over time, but they nonetheless remain a relatively unstable form of regulation (e.g., Koestner, Losier, Vallerand, & Carducci, 1996).

Identification. This is the process through which people recognize and accept the underlying value of a behavior. By identifying with a behavior's value, people have more fully internalized its regulation; they have more fully accepted it as their own. For example, if people identified with the importance of exercising regularly for their own health and well-being, they would exercise more volitionally. The internalization would have been fuller than with introjection, and the behavior would have become more a part of their identity. The resulting behavior would be more autonomous, although it would still be extrinsically motivated because the behavior would still be instrumental (in this case to being healthier), rather than being done solely as a source of spontaneous enjoyment and satisfaction. Regulations based on identifications, because the self has endorsed them, are expected to be better maintained and to be associated with higher commitment and performance.

Integration. This is the fullest, most complete form of internalization of extrinsic motivation, for it not only involves identifying with the importance of behaviors but also integrating those identifications with other aspects of the self. When regulations are integrated people will have fully accepted them by bringing them into harmony or coherence with other aspects of their values and identity (Pelletier, Tuson, & Haddad, 1997; Ryan, 1995). As such, what was initially external regulation will have been fully transformed into self-regulation, and the result is self-determined extrinsic motivation.

Autonomous and controlled motivation. When the process of internalization is differentially successful, such that external regulations are internalized through the processes of introjection, identification, or integration, the result will be different types of extrinsic motivation that vary in the extent to which they are controlled versus autonomous. External regulation, which is evident when no internalization has occurred, represents the most controlled form of extrinsic motivation, for people's behavior is regulated by others' administration of contingencies. Introjected regulation, which

involves internal prods and pressures and is characterized by inner conflict between the demand of the introject and the person's lack of desire to carry it out is still relatively controlled even though the regulation is within the person. In contrast, by identifying with the value of the activity, internalization will be fuller, people will experience greater ownership of the behavior and feel less conflict about behaving in accord with the regulation, and the behavior will be more autonomous. Finally, with integration, the most complete and effective internalization, the person's extrinsically motivated actions will be fully volitional.

The four regulatory styles, ranging from external to integrated regulation and representing the four types of extrinsic motivation, fall along a continuum anchored by controlled and autonomous regulation. These four types of regulatory processes are presented in the center section of Figure 1 and represent the outcomes of an ongoing person–environment interaction in which the person has been less versus more effective in internalizing and integrating the regulation of an activity or class of activities (see, e.g., Ryan & Connell, 1989; Vallerand, 1997).

At the far right end of Figure 1 is intrinsic motivation. It is placed there because it is the prototype of self-determined activity and as such represents a standard against which the qualities of an extrinsically motivated behavior can be compared to determine its degree of self-determination. However, the vertical line between integrated regulation and intrinsic motivation is intended to emphasize that fully internalized extrinsic motivation does not typically become intrinsic motivation. It remains extrinsic motivation because, even though fully volitional, it is instrumental rather than being what Csikszentmihalyi (1975) referred to as autotelic.

To summarize, goal-directed activities can differ in the extent to which they are autonomous or self-determined—that is, in the extent to which they are enacted with a full sense of volition and choice. Intrinsic motivation and well-internalized extrinsic motivation are the bases for autonomous or self-determined behavior. In contrast, behavior is considered controlled or non-self-determined to the extent that people feel pressured to do it. External and introjected regulations are the processes through which behavior is controlled. Although many empirically based theories treat motivation as a unitary concept, variable only in amount rather than kind (e.g., Bandura, 1996; Locke & Latham, 1990), our approach focuses on the kind of motivation or regulation—specifically, the degree to which it is self-determined versus controlled.

Autonomous and controlled activities involve different types of regulatory processes, yet both are instances of intentional (i.e., motivated) behavior. In contrast, *amotivation* is a state in which people lack the intention to behave, and thus lack motivation as that term is defined in the cognitive-motivational tradition. According to SDT, people are likely to be amotivated when they lack either a sense of efficacy or a sense of control with respect to a desired outcome—that is, when they are not able to regulate themselves with respect to a behavior (Pelletier, Dion, Tuson, & Green-Demers, 1999). Amotivation is shown at the far left end of the continuum in Figure 1. All forms of extrinsic regulation, even the most controlled, involve intentionality and motivation, so amotivation stands in contrast to intrinsic and extrinsic motivation, for it represents the lack of both types of motivation and thus a complete lack of self-determination with respect to the target behavior.

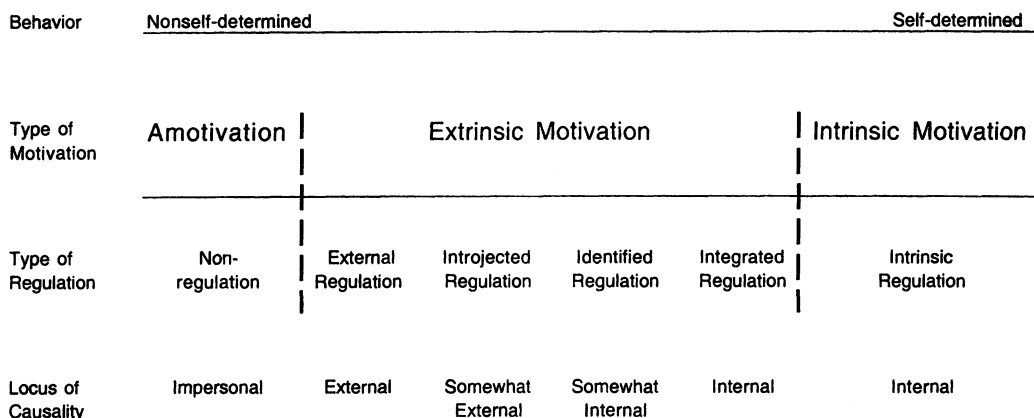


Figure 1. The self-determination continuum, showing the motivational, self-regulatory, and perceived locus of causality bases of behaviors that vary in the degree to which they are self-determined.

Internalization and Need Satisfaction

The internalization and integration of values and regulations is assumed in SDT to be a natural developmental tendency. For example, Chandler and Connell (1987) showed that, increasingly with age, children displayed internalized regulation of behaviors that were originally externally compelled. Yet internalization, like other natural processes such as intrinsic motivation, requires nutrients to function effectively; in other words, internalization does not happen automatically. The degree to which people are able to actively synthesize cultural demands, values, and regulations and to incorporate them into the self is in large part a function of the degree to which fulfillment of the basic psychological needs is supported as they engage in the relevant behaviors.

SDT proposes that people will tend naturally to internalize the values and regulations of their social groups. This tendency is facilitated by feelings of relatedness to socializing others, as well as feelings of competence with respect to the regulation being internalized. The latter includes the ability to understand or grasp the meaning or rationale behind the regulation and an ability to enact it. Supports for relatedness and competence thus facilitate internalization and can be sufficient to produce introjected values or compartmentalized (poorly integrated) identifications. However, for a regulation to become more integral to one's self, supports for autonomy are also required. That is, although support for relatedness and competence needs may promote the internalization of a regulation or value, those supports alone will not be sufficient to foster integration. For integration to occur there must be an opportunity for the individual to freely process and endorse transmitted values and regulations (and to modify or transform them when necessary). Excessive external pressures, controls, and evaluations appear to forestall rather than facilitate this active, constructive process of giving personal meaning and valence to acquired regulations.

Field research and laboratory experiments provided support for our general hypothesis. For example, Grolnick and Ryan (1989) interviewed parents of late-elementary students in their homes and then assessed the children's motivation and internalization in their classrooms. This study revealed that the degree to which parents provided autonomy support, optimal structure, and interpersonal involvement concerning their children's school work directly affected the extent to which the children valued and internalized the regulation of school-related activities. Parents who were rated by the interviewers as more involved and autonomy supportive had children who displayed not only more intrinsic motivation but also more internalized self-regulation for academic endeavors. In turn this was associated with enhanced performance and

well-being. Subsequently, Grolnick, Ryan, and Deci (1991) showed that children's perceptions of parental involvement and autonomy support also predicted more autonomous self-regulation.

Williams and Deci (1996) provided data showing the generalizability of this model of internalization to medical school settings. In a course emphasizing that high-quality health care involves attending not only to biological and pharmacological factors but also to psychological and social factors in the patients, the researchers found that when the instructors were more autonomy supportive, the students showed greater internalization of the values presented in the course and they became more autonomously motivated for learning the course material. This internalization was evidenced in corresponding behaviors a full 6 months after the course ended.

A laboratory experiment by Deci, Eghrari, Patrick, and Leone (1994) complemented the interview and questionnaire studies. In it, three factors theorized to facilitate internalization of the regulation for uninteresting activities were manipulated: a meaningful rationale, so people will understand why the target behavior is important; an acknowledgment of their feelings that the activity is not interesting, so they will feel understood; and an emphasis on choice rather than control, so they will feel free to accept responsibility for the behavior. After an experimental period of performing an uninteresting activity under one of the experimental conditions, participants were given a free-choice period in which they had the option of continuing to engage the activity or do other things. They then completed a questionnaire concerning their experience. Results indicated that the three factors did indeed facilitate internalization, as each contributed to the amount of subsequent self-initiated behavior and to the self-reported value and enjoyment of the activity. Thus, the social conditions that were expected to allow greater need satisfaction did lead to more internalization of the regulation for the target activity.

There was another important finding as well. Noting that even in conditions with a relative absence of facilitating factors there was some internalization, the researchers examined the type of internalization in various conditions. They found that in conditions with two or three facilitating factors the internalization tended to be integrated as reflected by significant positive correlations between the subsequent behavior and the self-reports of valuing and enjoying the task and feeling free while doing it, whereas in conditions with one or no facilitating factors the internalization that occurred appeared to be only introjected as reflected by negative correlations between subsequent behavior and the self-report variables. In the latter conditions, people who behaved more felt less free and enjoyed the activity less. Thus, it appears that conditions providing supports for psychological need satisfaction tend not

only to promote more internalization but also to ensure that the internalization will be integrated, relative to conditions less supportive of need satisfaction.

To summarize, research on internalization of extrinsic motivation highlights the human readiness to internalize ambient values and regulations. Yet to fully integrate such values and regulations, and thus to become self-determined with respect to them, people must grasp their importance and synthesize their meaning with respect to other values and motivations. Sheldon and Elliot (1998) described this state of integrated functioning as *self-concordance*, a state in which people's needs are in harmony with their activity. The holistic processing and self-compatibility checking (Kuhl & Fuhrmann, 1998) that is necessary to act with self-concordance requires the experience of freedom from rejection by others, from indicators of incompetence, and from excessive pressures. In this sense, supports for relatedness, competence, and autonomy allow individuals to actively transform values and regulations into their own, and thus to be more self-determined. In short, to the extent that adopting values and behaviors that are manifest in the social world garners acceptance by the social world and permits efficacious functioning in it, people will be inclined to internalize the values and behavioral regulations. To the extent that they are able to experience supports for autonomy, they will be more likely to actively integrate the values and regulations, and thus to volitionally or authentically carry out the behaviors they inspire.

The Process of (or Why) Goal Pursuits Makes a Difference

In the introduction to this article, we state that differentiating pursuit and attainment of goals in terms of their process (why) and content (what) is important for predicting behavioral quality and mental health. We further state that the concept of basic needs provides a basis for such assertions. After having clarified the meaning of basic psychological needs, we reviewed several studies concerning the relation of social contexts to the natural processes of intrinsic motivation and integration of extrinsic motivation. It was our attempt to integrate the results of these various studies that led us initially to posit the existence of the three basic psychological needs. We now turn to a review of research indicating that the process of goal pursuits—that is, whether pursuit and attainment of goals is autonomous versus controlled—does indeed make an important difference in terms of effectiveness and well-being because these different modes of regulation allow different amounts of need satisfaction. Subsequently, we turn to a consideration of goal content.

Numerous studies in educational settings investigated the consequences of more autonomous self-regulation for the quality of behavior and mental health. Most of these studies assessed self-regulation using an approach developed by Ryan and Connell (1989) in which people are asked why they engage in various behaviors (e.g., why students do their homework, why patients take their medications, etc.) and are provided different reasons that represent the different regulatory styles, ranging from external regulation to the more autonomous forms of self-regulation. Respondents rate the extent to which each reason is true for them, and they get a score for each style that can then be used separately to predict behavior and affect or, alternatively, can be combined algebraically to form an overall relative autonomy index (RAI).

In a series of studies, elementary school students indicated the extent to which they did various school-related behaviors for external, introjected, identified, or intrinsic reasons (e.g., Grolnick & Ryan, 1987, 1989; Grolnick, Ryan, & Deci, 1991). As expected, the four subscales that were used formed a simplex-like pattern in which the scales that were theoretically closer were more strongly correlated, indicating that these regulatory styles can be ordered along an underlying dimension of autonomy. Although intrinsic motivation is innate and thus does not result from internalization, the fact that it correlated more strongly with identified regulation than with introjected or external regulation indicated, as theorized, that the more fully a student identifies with a regulation, the more closely the quality of regulation approximates that of intrinsic motivation.

Grolnick and Ryan (1987) found that students who were more autonomous in reading text material showed greater conceptual understanding of the material than those who were more controlled. Grolnick, Ryan, and Deci (1991) found a positive relation between children's autonomous motivation (i.e., identified and intrinsic reasons) for learning and objective measures of achievement and teacher reports of the children's competence. Miserandino (1996) found that, even controlling for prior achievement scores, autonomous self-regulatory styles and perceived competence of third-grade and fourth-grade students predicted their positive school attitudes and performance (course grades and standardized test scores). Black and Deci (2000) showed that college students who were more autonomously motivated for organic chemistry enjoyed the course more and got higher grades than students who were more controlled in their motivation.

Ryan and Connell (1989) found that introjected regulation (a relatively controlled style) and identified regulation (a relatively autonomous style) were correlated with children's self-reports of trying hard in school and with parents' reports of their children being

motivated for school work. However, introjection was positively correlated with anxiety in school and maladaptive coping with failures, whereas identification was positively correlated with enjoyment of school and proactive coping with failures. This finding is particularly important because it suggests that students who are relatively controlled may look as motivated as students who are more autonomous, but the students whose motivation is controlled are likely to be doing less well in their performance and, even more so, in their well-being.

Vallerand and Bissonnette (1992) assessed the academic motivation of Canadian junior college students at the beginning of a school year. Subsequently, the researchers compared these initial motivation scores of students who had dropped out during the year and those who had stayed in school. Results indicated that the dropouts had significantly lower scores on identified, integrated, and intrinsic regulation than those who stayed in school. Vallerand, Fortier, and Guay (1997) did a follow-up study in which they used structural equation modelling to examine antecedents and consequences of autonomous motivation, finding that autonomy support from parents and teachers led students to be more autonomously motivated and to feel more competent for school work, which in turn resulted in less dropout.

Hayamizu (1997) and Yamauchi and Tanaka (1998) assessed external, introjected, identified, and intrinsic motives in Japanese students, showing a simplex-like structure to the relations among these regulatory styles and also effects of these styles on attitudes, coping, and outcomes that are similar to the ones we found in the United States and Vallerand and his colleagues found in Canada. Even more recently, Chirkov and Ryan (in press) showed cross-cultural similarities in motive structures and in the effects of autonomy-supportive versus controlling styles of teachers and parents upon the motive structures in Russian and U.S. high school students.

In a course on interviewing, Williams and Deci (1996) found that medical students who were more autonomous felt more competent at medical interviewing and subsequently behaved in ways that were more congruent with the values espoused in the course. This study suggested, therefore, that when students are more autonomous in learning they will be more likely to adopt the educationally transmitted behaviors (assuming that the behaviors are not inconsistent with their integrated selves). Sheldon and Elliot (1998) reported that more autonomous reasons for pursuing achievement goals among college students were associated with more personal dedication to the goals and more goal attainment than were controlled reasons. Further, Sheldon and Kasser (1998) found that when students were more autonomously self-regulating they displayed more goal-attainment progress and the goal

attainment was positively related to well-being outcomes. However, when the students' behavior was relatively controlled, they did not display the large increases in well-being following goal attainment.

To summarize, studies of student motivation in elementary through medical schools and in diverse cultures indicate that the SDT model of regulatory styles has considerable generalizability. Students' pursuit of educational goals for autonomous, relative to heteronomous, reasons has been positively associated with value endorsement, behavioral persistence, conceptual understanding, personal adjustment, and positive coping. The "why" of goal pursuits does make a difference in terms of educational outcomes.

Additional studies show the applicability of the SDT model to other domains in which internalization is implicated. For example, in a study of religious behavior, Ryan, Rigby, and King (1993) assessed the reasons why various Christian samples engage in behaviors such as going to church or praying regularly. Participants also completed various measures of psychological health and well-being. Results revealed that participants' scores on the introjection scale were negatively related to indicators of mental health whereas their scores on the identification scale were positively related to those same indicators. In other words, religious behaviors themselves did not relate to well-being but the reasons people engaged in those religious behaviors did. Being more autonomous in their religious behaviors was associated with better mental health, but being more controlled was associated with poorer mental health. Strahan and Craig (1995), using largely Australian samples, found further that religious parents who used a more autonomy-supportive as opposed to authoritarian style were more likely to engender identified rather than introjected beliefs.

Several studies of health-related behaviors used the SDT model of internalization in assessing why patients engage in physician-prescribed health-relevant behaviors such as taking medications or improving their diets. Results of one study showed that morbidly obese patients participating in a 6-month, medically supervised, low-calorie diet program who experienced the staff as more autonomy supportive also reported more autonomous reasons for participating and, in turn, had better attendance, lost more weight during the program, exercised more regularly, and had better maintained weight loss at a 23-month follow-up (Williams, Grow, Freedman, Ryan, & Deci, 1996). In another study (Williams, Rodin, Ryan, Grolnick, & Deci, 1998), patients reported reasons why they took their long-term medications, and results showed that the more autonomous their reasons the better their adherence. Williams, Freedman, and Deci (1998) found that patients with diabetes who experienced their providers as more autonomy supportive became more autonomous in their reasons for following treatment regimens

and showed greater physiologically indexed improvement in glucose control over a yearlong treatment period. Finally, Williams, Gagné, Ryan, and Deci (2000) found that the degree to which trained observers rated doctors as more autonomy supportive predicted patients' level of autonomous motivation for smoking cessation, and that significantly predicted their 6-month and 30-month biochemically validated cessation rates.

Research on regulatory styles in several other behavioral domains has revealed complementary findings. Greenstein and Koestner (1996) found that when students' reasons for making New Years' resolutions were more autonomous, the students were more likely to have maintained their resolutions 2 months later. Koestner, Losier, et al. (1996) found that identified reasons for following political issues were associated with actively seeking relevant political information, holding more complex political positions, and actually voting in the relevant elections, whereas introjected reasons were associated with relying on the opinions of others, experiencing conflicted emotions about outcomes, and being vulnerable to persuasion.

Seguin, Pelletier, and Hunsley (1998) found that people with autonomous (i.e., identified and integrated) reasons for protecting the environment sought out more information about the environment and were more persistent in carrying out behaviors that protected the environment than were those with controlled reasons. Further, it appears that the positive relation between self-determined motivation and environmentally protective behaviors is stronger when the requisite behaviors are more difficult (Green-Demers, Pelletier, & Menard, 1997), suggesting that autonomous motivation is particularly important when greater effort or persistence is required to carry out a socially valued action.

Studies have begun to look at internalization and treatment motivation. Pelletier et al. (1997) developed an internalization measure for psychotherapy and showed that more autonomous motivations were associated with greater satisfaction, less tension, more positive moods during therapy, and greater intentions to persist in treatment. Ryan, Plant, and O'Malley (1995) found that patients in an alcohol treatment program who reported more autonomous reasons for participating attended more regularly and were more involved in the treatment than were those reporting more controlled reasons. Finally, Zeldman, Ryan, and Fiscella (1999) found that patients in a methadone maintenance program who had more self-determined treatment motivation showed greater adherence, including fewer failures at random urine tests for illicit drug use. Further, perceived autonomy-support from clinic staff was also related to better outcomes.

To summarize, research using regulatory styles has been conducted in several behavioral domains ranging

from education to sport, and politics to health care. Results of the studies showed consistently that more fully internalized regulation was associated with greater behavioral persistence, more effective performance, and better mental and physical health.

Causality Orientations

This approach to studying different processes for regulating goal-directed behavior complements the regulatory-styles approach by examining individual differences in the general tendencies toward autonomous, controlled, and impersonal causality in the regulation of behavior. The causality orientations method cuts across domains by providing varied scenarios and assessing the degree to which people are (1) *autonomy oriented*, which involves regulating their behavior on the basis of interests and self-endorsed values, (2) *control oriented*, which involves orienting toward controls and directives concerning how they should behave, and (3) *impersonally oriented*, which involves focusing on indicators of ineffectance and not behaving intentionally. These three orientations are representative, respectively, of general tendencies toward (1) intrinsic motivation and well-integrated extrinsic motivation; (2) external and introjected regulation; and (3) amotivation and lack of intentional action. In Vallerand's (1997) hierarchical model of motivation, causality orientations are at the highest level of generality, with domain-specific regulatory styles below them.

Autonomy and control. Respondents on the General Causality Orientations Scale (Deci & Ryan, 1985a) get a score for each orientation reflecting the strength of that general tendency, although in this discussion we focus primarily on autonomy and control. In the initial research by Deci and Ryan the autonomy orientation was found to relate positively to self-actualization, self-esteem, ego development, and other indicators of well-being. As expected, the controlled orientation was not positively associated with well-being but instead was related to public self-consciousness and the Type-A coronary prone behavior pattern, indicating that the focus tends to be outward and pressured.

In a set of studies, Koestner, Bernieri, and Zuckerman (1992) explored the relation of the autonomy and controlled orientations to integration in personality. They first separated individuals according to whether the individuals tended to be more autonomous or more controlled as a function of which standardized score was higher, and then they examined the consistency among behaviors, traits, and attitudes. Results indicated that autonomy-oriented individuals displayed a strong positive relation among behaviors and

self-reports of traits or attitudes, whereas those who were control-oriented displayed weak or even negative relations among various aspects of their personalities. These studies therefore provided an empirical link between the concepts of autonomy and integration in that those whose regulation was more autonomous showed greater congruence among personality, awareness, and behavior.

As would be expected, studies show that the general autonomy and controlled orientations are predictive of regulatory styles in various domains (Vallerand, 1997). For example, a study by Williams and Deci (1996) found that causality orientations scores predicted students' regulatory styles for learning and Williams, Grow et al. (1996) found that causality orientations scores predicted patients' regulatory styles for weight loss and exercise.

Hodgins, Koestner, and Duncan (1996) examined how the autonomy and controlled orientations relate to interpersonal functioning in different relationships. Results indicated that the autonomy orientation was positively related to individuals' experiencing satisfying, honest, naturally occurring interactions with parents and friends, whereas the controlled orientation was positively related to defensive functioning. In other words, being more autonomous as a general orientation was associated with more positive and satisfying personal relationships. This is particularly interesting in light of the frequently espoused position that autonomy and relatedness are incompatible or competing aspects of experience (e.g., Blos, 1979; Jordan, Kaplan, Miller, Stiver, & Surrey, 1991).

Like Angyal (1965), we argue that there are two important trajectories in human development, both of which require competencies and are subserved by the basic psychological needs (Ryan, 1993). It is in people's nature to develop greater autonomy (as represented by greater integration within the self) and greater relatedness (as represented by the assimilation and integration of oneself within the social community). Not only are the two trajectories not antithetical, but the healthiest development involves both. The incompatibility arises only when the social context is structured in a way that turns the needs against each other. For example, a recent study of late-adolescent children by Assor, Roth, and Deci (2000) shows that greater parental use of conditional love as a disciplinary technique (which requires children to subjugate autonomy to gain love) was associated not only with the children's feeling compelled (rather than wanting) to carry out the target behaviors but also with the children's feeling less loved and experiencing more generalized anger and resentment toward their parents.

Detachment and independence are indeed incompatible with relatedness, and the confusion about the relation between autonomy and relatedness may stem from the misinterpretation of autonomy as detachment

or independence. To be autonomous does not mean to be detached from or independent of others, and in fact Ryan and Lynch (1989) showed how autonomy can be positively associated with relatedness and well-being. Autonomy involves being volitional, acting from one's integrated sense of self, and endorsing one's actions. It does not entail being separate from, not relying upon, or being independent of others.

Impersonality and amotivation. Our research (Deci & Ryan, 1985a) on causality orientations also showed that the impersonal orientation was associated with an external locus of control (i.e., the belief that one cannot control outcomes) and with self-derogation and depression, implying a negative relation to general well-being. These findings were also consistent with research by Pelletier et al. (1999) on the beliefs associated with amotivation. Those researchers found that people's general sense of amotivation with respect to engaging in recycling and other environmentally friendly behaviors resulted from believing that they are not really capable of carrying out the necessary behaviors and that the behaviors do not make a difference to the environment anyway.

Amotivation and the impersonal causality orientation result from and foster lack of basic need satisfaction. Not only do they imply lack of autonomy (as does controlled motivation) but they also imply lack of competence and/or relatedness. Accordingly, they are associated with the poorest performance and mental-health outcomes (Ryan, Deci, & Grolnick, 1995).

Need Satisfaction Through Autonomous Regulation

Individuals can engage in a variety of goal-directed behaviors in an attempt to attain competence and relatedness, behaviors that could be either controlled or autonomous. For example, an athlete might work relentlessly to become more competent than others, or a fraternity member might behave in accord with social norms to feel related to the group. In both of these cases, the behaviors could be either autonomous or controlled. That is, the athlete could feel competent whether the practicing was autonomous or controlled, and the fraternity member could feel related to the group whether or not the regulatory basis of the member's relational behavior was self-determined. Thus, autonomy occupies a unique position in the set of three needs: being able to satisfy the needs for competence and relatedness may be enough for controlled behavior, but being able to satisfy the need for autonomy is essential for the goal-directed behavior to be self-determined and for many of the optimal outcomes associated with self-determination to accrue.

Various studies support this view. For example, Fisher (1978) found that being competent but not autonomous was not enough to sustain intrinsic motivation, and Nix, Ryan, Manly, and Deci (1999) showed that successful performance enhanced intrinsic motivation and subjective vitality only when people experienced autonomy as well as competence. Similarly, Blais, Sabourin, Boucher, and Vallerand (1990) discovered that being in a close relationship without a sense of autonomy was associated with lower enjoyment, satisfaction, and well-being. Thus, as SDT predicts, this research indicates that only when people's feelings of relatedness and competence result from behaviors that are autonomous—behaviors that emanate from the self—will the people display optimal engagement and psychological well-being (Ryan, 1993). It seems that when people are more able to satisfy all three of their basic psychological needs the regulation of their behavior will be characterized by choice, volition, and autonomy rather than pressure, demand, and control, and the result will be higher quality behavior and greater psychological well-being.

In Summary

The distinction between amotivation and motivation appears in numerous motivational theories (under various terminologies), and there is little doubt about the fact that amotivation is associated with a wide range of highly negative outcomes. The distinction between autonomous and controlled types of motivation, which is relatively unique to SDT, is also a functionally important distinction, as shown by research focused at the general level of causality orientations and at the more domain-specific level of regulatory styles. When people's goal-directed behavior is autonomous rather than controlled, the correlates and consequences are more positive in terms of the quality of their behavior as well as their health and well-being. The *why* of goal pursuits does indeed matter, and we argue that this is because autonomous regulation involves greater need satisfaction.

Psychological Needs as Innate or Essential Propensities

We have now seen that the postulate of three basic psychological needs evolved because of the concept utility for integrating the results of research on intrinsic motivation and internalization of extrinsic motivation. As well, we saw that intrinsic motivation and well-internalized forms of extrinsic motivation were associated with better performance and greater well-being, suggesting that need satisfaction promoted those outcomes. However, given our definition of needs as be-

ing innate and essential, there are three additional issues that must be addressed. First, it is necessary to establish a clear link between satisfaction of the needs for competence, relatedness, and autonomy and various indicators of well-being. Second, it is important to show that these needs are operative across cultures as a way of providing evidence about their universality. And third, it is imperative to show that the concept of needs and its role in the theory are tenable from an evolutionary perspective. We address these issues in turn.

Basic Psychological Need Satisfaction and Well-Being

Recently, we have been engaged in diverse studies to show that satisfaction of autonomy, competence, and relatedness needs are linked directly to well-being. Well-being, which has interested scholars through the ages, concerns the experience of psychological health and life satisfaction. However, in our view, well-being is not simply a subjective experience of affect positivity but is also an organismic function in which the person detects the presence or absence of vitality, psychological flexibility, and a deep inner sense of wellness (Ryan & Frederick, 1997; Ryan, Deci et al., 1995). Accordingly, SDT predicts that fluctuations in need satisfaction will directly predict fluctuations in well-being. We briefly review studies concerned with this prediction and then build on them to make the second important point in our overall argument, namely, that the content or "what" (as well as the "why") of goal pursuits affects well-being because of its relation to need satisfaction.

One intriguing method to test the relation of needs to well-being over time employs diary procedures to explore whether daily variations in need satisfaction predict daily fluctuations in well-being. By using hierarchical linear modeling, between-person and within-person relations between perceived need satisfaction and indices of well-being can be examined. In one study, Sheldon, Ryan, and Reis (1996) examined daily variations in autonomy and competence experiences. They found that, at the individual-difference level, trait measures of perceived autonomy and perceived competence were significantly correlated with indices of well-being—including positive affect, vitality, and the inverse of negative affect and symptomatology—aggregated over a 2-week period. Then, after removing person-level variance, analyses showed that daily fluctuations in the satisfaction of needs for autonomy and competence predicted fluctuations in daily well-being. It was on days when autonomy and competence were experienced that participants reported having a "good day." In a subsequent study, Reis, Sheldon, Gable, Roscoe, and Ryan (2000) examined all three basic psychological needs,

each of which was predicted to play a role in daily well-being. They found first that trait measures of autonomy, competence, and relatedness, as well as aggregates of the daily measures of these three trait measures, were all associated with aggregate indices of well-being, thus confirming the between-person predictions. As in the earlier study, after person-level variance was removed, daily fluctuations in satisfaction of the three needs independently predicted daily fluctuations in well-being. Thus, both studies demonstrated a linkage between need satisfaction and well-being at the within-person as well as between-person levels of analysis and, additionally, showed the independent contributions of satisfaction of each basic need for each day's well-being.

Other studies examined the relation between need satisfaction and well-being in specific settings, finding for example that employees' reports of satisfaction of their needs for autonomy, competence, and relatedness in the workplace were related to self-esteem and general health (Ilardi, Leone, Kasser, & Ryan, 1993) and to vitality and the inverse of anxiety and somatization (Baard, Deci, & Ryan, 2000), not only in the United States but also in Bulgaria (Deci, Ryan, Gagné, Leone, Usunov, & Kornazheva, in press). A study by V. Kasser and Ryan (1999), extending earlier work by Vallerand and O'Connor (1989), conducted in an nursing home, revealed that satisfaction of the needs for autonomy and relatedness in their daily lives were positively related to well-being and perceived health among these nursing home residents.

To summarize, having found that the concept of the three basic psychological needs was necessary for a meaningful integration of experimental results concerning intrinsic motivation and the internalization of extrinsic motivation, we subsequently showed that the experienced satisfaction of these three needs was directly related to psychological health and well-being.

The Content of (or What) Goal Pursuits Makes a Difference

Research on regulatory styles and causality orientations has shown that the processes through which goal-directed behavior is regulated affect the outcomes that accrue. In particular, behavior that was autonomously regulated led to a variety of more positive outcomes, including higher quality performance, improved maintenance of behavior change, and better mental health, relative to behavior that was controlled. These findings have been explained in terms of autonomous regulatory processes providing greater satisfaction of the fundamental psychological needs. Moreover, as discussed in the previous section, opportunities to experience autonomy, competence, and relatedness were found to play a role in well-being not

only at the individual-difference level, between persons, but also at the daily level, within-persons, as a needs theory would predict. Recent research has taken yet another tack in relating needs to well-being by examining the differential association of *goal contents* to well-being.

Intrinsic and Extrinsic Aspirations

Ryan, Sheldon, Kasser, and Deci (1996) argued that the pursuit and attainment of some life goals may provide greater satisfaction of the basic psychological needs than the pursuit and attainment of others, and that those providing greater satisfaction would be associated with greater well-being. Specifically, T. Kasser and Ryan (1993, 1996) distinguished between *intrinsic aspirations* (i.e., goals such as affiliation, personal growth, and community contribution, which are closely associated with basic need satisfaction) and *extrinsic aspirations* (i.e., goals such as attaining wealth, fame, and image, which are more related to obtaining contingent approval or external signs of worth, and thus are, on average, expected to be less likely to yield direct need satisfaction and may even distract from it). Although use of the terms intrinsic and extrinsic to describe these goal categorizations may be a bit confusing, the intention in using them was to convey that, in general, some goals are expected to be more closely linked to basic or intrinsic need satisfaction than are others. T. Kasser and Ryan (in press) suggested that, because of these expected links to basic need satisfaction, pursuit and attainment of intrinsic aspirations would be more strongly associated with well-being than would pursuit and attainment of extrinsic aspirations.

In this research, participants rate the importance to themselves of various aspirations or life goals, and also their beliefs about the likelihood of attaining those goals. An importance index is formed for each aspiration by partialling out a person's overall mean of importance ratings from that person's importance rating for each aspiration. This index thus reflects the importance of each aspiration to that person, *relative* to the other aspirations. An alternative rank-order procedure has also been used.

In the first of three studies, T. Kasser and Ryan (1993) found that the aspiration indexes (the semipartial of importance ratings, with the person's mean for the importance of all aspirations removed) for the three intrinsic aspirations (personal growth, relationships, and community involvement) were significantly positively related to self-actualization (Jones & Crandall, 1986) and vitality (Ryan & Frederick, 1997), whereas the aspiration index for financial success (the only extrinsic aspiration used in the study) was negatively related to those indicators of

well-being. The higher the relative importance of financial success, the lower the subject's self-actualization and vitality. In the second study, T. Kasser and Ryan extended these results to the outcomes of anxiety and depression. The third study with the same three intrinsic aspirations and the extrinsic aspiration for wealth was conducted with a community sample of 18-year-olds, heterogeneous with respect to socio-economic status (SES), race, and educational attainment. Well-being was assessed via ratings derived from a structured interview by a clinical psychologist, yielding indicators of global social functioning (Shaffer et al., 1983), conduct disorder (Herjanic & Reich, 1982), and social productivity (Ikke, Lipp, Butters, & Ciarlo, 1983). Results showed that whereas an emphasis on intrinsic aspirations related positively to global social functioning and social productivity and related negatively to conduct disorders, the opposite was true for an emphasis on financial success. Placing high relative importance on material outcomes was again related to poorer well-being.

In two subsequent studies, T. Kasser and Ryan (1996) added two more extrinsic aspirations, namely, image and fame. Higher order factor analyses revealed two clear factors, as expected, one for the intrinsic aspirations and the other for the extrinsic aspirations, thus supporting the theoretically based distinction. Analyses relating aspirations to mental health in both studies revealed results comparable to those in the earlier studies, showing that high relative emphasis on intrinsic aspirations was associated with more self-actualization and vitality, as well as less depression and fewer physical symptoms, whereas high relative emphasis on extrinsic aspirations was associated with lower self-actualization and vitality, and more physical symptoms. Whereas the studies thus far reviewed considered the relative value to a person of different aspirations or life goals, additional studies show that the perceived *attainment* of intrinsic versus extrinsic aspirations is also differentially associated with well-being. For example, T. Kasser and Ryan (in press) found that rated current attainment of intrinsic aspirations was positively associated with well-being, but rated current attainment of extrinsic aspirations was not. Ryan, Chirkov, Little, Sheldon, Timoshina, and Deci (1999) showed similarly, in Russian and U.S. samples, that extrinsic goal attainment generally did not enhance well-being, whereas the attainment of intrinsic aspirations did. Further, in a short-term longitudinal study, Sheldon and Kasser (1998) found that well-being was enhanced by the actual attainment of intrinsic goals, whereas success at extrinsic goals provided little benefit. Together, these results suggested that even highly efficacious individuals may experience

less than optimal well-being if they pursue and successfully attain goals with more extrinsic than intrinsic contents.

Process and Content: More on the Why and What

Sheldon and Kasser (1995) used Emmons's (1986) approach to index the strivings (i.e., relatively short-term, semester-long, goals) of undergraduates. They also assessed the students' reasons for pursuing each striving (using the Ryan and Connell, 1989, self-regulation approach), and the helpfulness of each striving for attainment of intrinsic versus extrinsic life goals (i.e., long-term aspirations). Analyses showed, first, that the degree to which the regulation of striving pursuits was autonomous versus controlled predicted a variety of well-being outcomes, supplementing numerous findings reviewed earlier. Further, the extent to which the students believed the strivings would lead to the attainment of long-term intrinsic aspirations was positively related to well-being, whereas the extent to which the strivings were expected to lead to long-term extrinsic attainments was unrelated to well-being but was related to the controlled orientation on the General Causality Orientations Scale. Thus, it seems that when people value intrinsic aspirations, they also tend to be more autonomous in pursuing them, whereas there is a tendency for people to be controlled in their pursuit of extrinsic aspirations. Nonetheless, different goal contents can vary in their relative autonomy.

In accord with this reasoning, Carver and Baird (1998) posited that the effects of aspiration contents on well-being may be primarily a function of why the goal is being pursued—that is, of the regulatory process rather than the content of the goal. If so, it would mean that when people pursue extrinsic aspirations for autonomous reasons there would not be negative effects, and, further, it would imply that because pursuit of extrinsic aspirations has consistently been found to relate negatively to well-being, extrinsic aspirations are usually pursued for nonautonomous reasons. The researchers assessed the relative importance participants placed on the aspiration for wealth, and also the strength of their autonomous reasons and the strength of their controlled reasons for pursuing wealth. Analyses indicated that autonomous reasons for pursuing wealth were positively related to self-actualization and that controlled reasons for pursuing wealth were negatively related to self-actualization, as predicted. However, the relative importance of wealth was also significantly negatively related to self-actualization even after controlling for the effects of reasons. Thus, although pursuing any aspiration for autonomous reasons seems to be advantageous relative to pursuing it for controlled reasons, the negative effects of extrinsic

aspirations on well-being appear to remain even when the effects of the regulatory styles has been removed. SDT predicts that the content of goals and the reasons why people pursue them can affect well-being, and that, because content and process relate to underlying satisfaction versus thwarting of basic needs, covariation between content and process will typically occur.

Need Satisfaction, Culture, and Well-Being

According to SDT, the three basic psychological needs are universal and thus must be satisfied in all cultures for people to be optimally healthy. Unlike several social-learning and cognitive theories that are in the mainstream of current, empirically based psychological thought, SDT does not abide by the so-called standard social science model (see, e.g., Tooby & Cosmides, 1992), but rather posits that people have an evolved *human nature* that includes basic psychological needs and integrative propensities. Nonetheless, there is considerable variability in the values and goals held in different cultures, suggesting that some of the avenues to basic need satisfaction may differ widely from culture to culture. For example, in a collectivist culture, people may resonate to group norms so acting in accord with them might lead them to experience relatedness and autonomy insofar as they have fully internalized the collectivist values of their culture. By contrast, in an individualistic culture, acting in accord with a group norm might be experienced as conformity or compliance and thus as a threat to autonomy rather than an expression of it, so behaviors that conform to group norms could have a different meaning and impact. This implies that, when investigating issues related to basic needs in different cultures, it is necessary to take a dynamic perspective, to go deeply enough into psychological processes to find linkages between the underlying needs and phenotypic behaviors that are different in different cultures, indeed, that may even appear on the surface to be contradictory. Cross-cultural research connecting needs with motivational processes and contents is relatively new, but initial results are promising.

Hayamizu (1997) used the self-regulation questionnaire to assess the motivation of junior high school students in Japan and found that the autonomous forms of motivation were associated with positive coping whereas the controlled forms were associated with maladaptive coping. These results suggest similar motivational dynamics in the children of the United States and Japan (see also Yamauchi & Tanaka, 1998).

A recent study of Bulgarian workers in state-owned companies that still operated largely by central-planning principles examined the relations among so-

cial-context variables, need satisfaction on the job, and well-being (Deci et al., in press). Results of this study indicated construct comparability between Bulgarian and U.S. samples and confirmed, consistent with results from previous studies (e.g., Baard et al., 2000; Ilardi et al., 1993), that contextual supports predicted satisfaction of the basic needs for competence, autonomy, and relatedness, which in turn predicted work engagement and well-being. Employees who reported greater need satisfaction on the job were more motivated and psychologically better adjusted.

In another study, we examined the relation of aspirations to well-being in Russia (Ryan et al., 1999). Russian college students completed an assessment of aspirations as well as several indicators of well-being, and the results indicated that those individuals whose life goals were focused more on relationships, growth, and community than on wealth, image, and fame evidenced greater well-being. Another study (Schmuck, Kasser, & Ryan, 2000) examined aspirations within a sample of German college students. The results generally replicated those of T. Kasser and Ryan (1993). Such findings support our inferences concerning the connections between certain goal contents and basic need satisfaction, at least within these cultures.

Although this cross-cultural work on intrinsic and extrinsic goals appears fruitful, we reiterate that because specific goal contents will not necessarily have the same meaning or function in different cultures, we do not necessarily expect these goal contents to have invariant relations to well-being in all cultures. The issue, theoretically, concerns the specific relation between a value and its impact on basic need-related outcomes. Additional tests of the relations of goals, needs, and well-being will be required in cultures in which there are substantially different cultural values, socialization practices, or both, and in which various aspirations may have different meanings than they have in western cultures such as the United States.

Furthermore, it will be important to investigate within cultures the extent to which values, such as individualism versus collectivism, have been well integrated rather than merely introjected. Such research would confirm that the autonomous versus controlled processes through which cultural values are enacted will have differential effects on well-being (presumably by having differential effects on need satisfaction). Only when values have been fully integrated would people be expected to enact them with the highest order reflection and volition, and it is then that we would expect the values to be associated with the most positive outcomes.

An interesting recent study by Iyengar and Lepper (1999) emphasized how the means through which needs are satisfied may vary by culture. The study examined the effects of decisional choice, which in the United States has been found to support autonomy and

enhance intrinsic motivation (Zuckerman et al., 1978). Specifically, the investigators examined the effects on intrinsic motivation for Americans and Asians of (1) making choices individually, (2) accepting the choices made by trusted in-group members, and (3) having the choices imposed by distant or nontrusted others. Results indicated, first, that, in both groups, having goals imposed by others led to the lowest level of intrinsic motivation, as would be straight-forwardly predicted by SDT. In addition, within the American sample, for whom culture stresses individualism, the individual decisions led to the highest level of intrinsic motivation, with decisions made by trusted others being second; whereas within the Asian sample, for whom culture stresses collectivism, these two groups were reversed—those accepting decisions made by the trusted in-group had the highest level of intrinsic motivation and those making individual decisions had the second highest level. Our interpretation of these results is that the means through which autonomy is expressed can differ across cultures. Within the American culture, people tend to feel volitional and autonomous when they are making their own decisions, for that is consistent with values that have been well internalized. However, in some East Asian cultures, people may feel more volitional and autonomous when endorsing and enacting values of those with whom they identify. In both types of cultures autonomy, relative to control, is crucial for intrinsic motivation and well-being, but the forms that autonomy takes can nonetheless vary in accord with what is culturally meaningful.

Thus, although cultures vary greatly in the goals and values they transmit and in the opportunities they provide to developing individuals, SDT's focus is on the relations of these goals, values, and opportunities to psychological needs. The varied cultural values and goals provide greater or lesser satisfaction of the innate psychological needs, depending on the degree to which individuals have been able to integrate the values and goals with their own sense of self. Cultures (and cultural subgroups such as families, clubs, and work groups) provide tools, practices, and values that can allow people to satisfy basic needs, to feel volition and choice as well as cohesion and relatedness. Insofar as this occurs, we would expect to find human health and well-being. However, if the values and goals are not well integrated, for example because the cultural or subcultural context is chaotic and pressuring rather than optimally challenging and supportive, we would expect to find not only constituents who evidence less well-being but cultures themselves that are less stable and more fragmented. In short, the processes through which group goals and values are enacted will affect the outcomes for the individuals and the group.

Furthermore, although there may be considerable variability in the goals and values that become integrated in different cultures and subcultures, we main-

tain, in line with our organismic-dialectical metatheory, that some cultural goals and values are themselves not integrateable because they are inconsistent with the basic needs and processes of self. As examples, we suspect that a cultural value for genital mutilation, and a cultural more that boys should not cry, are practices that, because they are inherently incompatible with basic needs, can at best become introjected or compartmentalized as values. They cannot be integrated within the self. Thus, unlike some theories in which the contents of all cultural goals are deemed equally good and equally satisfying if people succeed at them, SDT deals with the harder question of "good for what?" We maintain not only that cultural goals must be integrated to provide full satisfaction of the basic needs, but also that some goals are not integrateable because they are inherently inconsistent with human nature. Accordingly the enactment of need-incongruent goals will engender costs in terms of psychological growth, integrity, and well-being.

An additional speculation from this viewpoint concerns the relation of needs to cultural internalization and stability. Cultures transmit an array of values, some more compatible and some less compatible with basic needs. We maintain that the more a culture, through its typical style of socialization and the contents of the regulations it transmits, promotes integrated internalizations, the more its members will be in harmony and the more stable will be the culture. In contrast, cultures that either use controlling forms of socialization or endorse goals and values that are unintegrateable tend to foster alienation and anomie and, thus, are inherently less stable. In this way, needs constrain the dynamics of cultural evolution and the memes associated with it.

A Summary of Basic Needs and the Effects of Goal Pursuits

SDT hypothesizes that the process and content of goal pursuits make a difference for performance and well-being. An emphasis within one's life on intrinsic goals, defined as goals that, on average, might be expected to yield greater basic psychological need satisfaction, is positively associated with mental health; whereas an emphasis on extrinsic life goals, defined as those that are either unrelated or antagonistic to basic needs, is negatively associated with mental health. Further, whereas the attainment of intrinsic life goals is associated with enhanced well-being, the attainment of extrinsic life goals (once one is above poverty level) appears to have little effect on well-being. Finally, the autonomous regulation of goal pursuits is associated with better performance and mental health than is the controlled regulation of goal pursuits, because integrated regulation allows fuller satisfaction of the three

basic psychological needs. However, we also maintain that some goals are not integrateable.

Thus, the evidence does indicate that the process and content of goal pursuits make a difference to the quality of life, and it is the relation of motivated behavior to satisfaction of the basic needs for autonomy, competence, and relatedness that allows a meaningful integration of these findings. Although the basic needs are theorized to be universal and thus relevant in all cultures, SDT suggests that it is important to focus on the relation of salient goals to needs at between-culture and within-culture levels.

Need Satisfaction and the Self

In reviewing research on the autonomous regulation of goal-directed behavior, we made passing reference to the fact that autonomous regulation, either in the form of intrinsic motivation or fully integrated extrinsic motivation, emanates from the *self* and that the means through which extrinsic motivation becomes self-determined is integration of regulations and values into the *self*. Implicit in those comments is a definition of self, which deserves specification, even if only briefly, for it is very different from the view of self in most current empirically based personality and social-psychological theories (Deci & Ryan, 1991).

The Self in SDT

Our concept of self, because of its organismic basis, begins with intrinsic activity and the organismic integration process—that is, with the innate tendencies of human beings to engage in interesting activities and to elaborate and refine their inner representation of themselves and their world. The activity and integrative tendency move the organism toward a more unified set of cognitive, affective, and behavioral processes and structures (Deci & Ryan, 1991; Ryan, 1995). This innate integrative tendency, which is manifest in internalization, functions in concert with the fundamental psychological needs. In other words, the inherent tendency for activity, the integrative process, and the fundamental needs are all aspects of one's *nascent self*, and gradually the self is elaborated and refined through the integrative process. Inherent activity and the intrinsically motivated behavior that is its manifestation are part of the nascent self, and cultural values, extrinsic motivations, and emotional regulations can become part of the self through the integrative process. As such, behaviors that are motivated by regulations that have not been fully integrated into the self are not considered *self-determined*. As already noted, introjected regulation represents a prime instance of behavior that is motivated by processes internal to the person but relatively external to the self.

Other Views of Self

Our concept of self is, of course, very different from the more common view of self as a set of internalized schemata that are cued by contextual variables and activate behaviors (e.g., Mischel & Shoda, 1995). Thus, for example, in our view, the “ought self” (Higgins, 1987) is a set of introjected values or standards that can affect the self and motivate behavior but is not the basis for self-determined action. Ought-based behaviors have, according to SDT, a relatively external perceived locus of causality, as confirmed by experiments on ego involvement or should-oriented inductions (e.g., Ryan, 1982). Similarly, from our perspective, schemata related to possible selves (Markus & Sentis, 1982), personal strivings (Emmons, 1986), personal projects (Little, 1983), or self-aspects (Linville, 1987) can vary in the degree to which they are well assimilated into the self, and thus would vary in the degree to which they are the basis for self-determined versus controlled behavior, producing dramatically different experiential and behavioral outcomes. For a *self-schema* to be the basis for self-determined action, it would have to be integrated into the set of flexible, unified regulatory processes, values, and structures that allow people to engage volitionally in activities, whether socially prompted, emotionally energized, or simply pursued out of interest. Such integration is most likely to occur in social contexts that allow people to satisfy basic psychological needs.

When Needs Are Not Satisfied

Equifinality is one of the basic properties of needs, whether somatic or psychological, which is to say that people are persistent in their attempts to satisfy primary needs, devising new paths when old routes no longer work. Nonetheless persistent deprivation of any need has costs for health and well-being. As noted earlier, thwarting of basic psychological needs may more readily lead to investment in compensatory activities or substitute fulfillments than will thwarting of basic somatic needs in which perseveration toward direct drive satisfaction is typically evident. Thus, in spite of people's persistent attempts to satisfy the fundamental needs for competence, relatedness, and autonomy, if the social world provides no reliable paths that allow fulfillment of these critical needs, and if people have to stay in situations that consistently block need satisfaction (e.g., children often have to stay in nonnurturing homes and schools), SDT predicts significant psychological costs and accommodations. Indeed, the etiology of various forms of psychopathology resides primarily in developmental deprivations concerning basic psychological needs (Ryan, Deci et al., 1995). Controlling, chaotic, punishing, and neglecting

parenting and teaching environments make autonomous regulation and need satisfaction less possible and result in costs such as inner conflict, alienation, anxiety, depression, and somatization, as well as accommodations in the form of controlling regulatory processes and compensatory goals.

Consider, for example, an environment in which children must do (or *be*) what the parents want them to do (or *be*) in order to get their parents' love. As discussed earlier, this motivational strategy of contingent love is a case in which the social world has essentially pitted the need for relatedness against the need for autonomy. The children are thus in the uncomfortable position of being controlled, of having to relinquish autonomy (and thus not be who they really are) in order to gain parental love. Accordingly, we would expect accommodations and emotional costs, and as the study by Assor et al. (2000) showed, children who experienced their parents as providing contingent love displayed accommodation (e.g., introjected regulation) and emotional costs (e.g., feeling unloved and resentful toward their parents). Having behaved to gain parental love (external regulation), their behavior became increasingly aimed at feeling self-worth (introjected regulation), and, as we have seen, external and introjected regulation of behavior have a variety of negative mental health consequences relative to more autonomous regulation of behavior.

The environments offering contingent love would, however, lead to less serious maladaptation than would more hostile environments such as those in which the children are neglected or abused, receiving infrequent, inconsistent, and punishing attention (Cicchetti, 1991). In those cases, the children would experience little or no satisfaction of the three needs, and they would likely display a high level of amotivation and impersonal causality with their unfortunate concomitants (Ryan, Deci et al., 1995). In fact, in a recent study of maltreated children and well-matched comparisons, it was found that having representations of parents that were less autonomy supportive, less positive, and less coherent was associated with more emotional and behavioral dysregulation, as observed during peer interactions (Shields, Ryan, & Cicchetti, in press).

Our active-organism starting point suggests that in situations in which need satisfaction cannot be achieved, people's inherent tendency toward activity and organization will lead to protective responses—that is, to the best accommodation possible. Accordingly, people develop substitute motives, nonautonomous regulatory styles, and rigid behavior patterns that serve to protect them from the threat and preserve as much satisfaction as seems possible in the nonsupportive situations. These compensatory processes are expected to result not only in the defensiveness that protects them from the pain associated with need deficits but also in goal processes and contents that

are associated with less than optimal performance and well-being. Thus, although the accommodation is as positive as possible, it has the unfortunate consequence of continuing to thwart need satisfaction, even in situations where satisfaction might be available.

Need Thwarting and Compensatory Motives

As suggested, one component of the accommodation to a lack of need satisfaction involves developing *need substitutes* (Deci, 1980) or *compensatory motives* that do not really satisfy the thwarted basic needs but provide some collateral satisfaction. For example, if people's need for relatedness is substantially thwarted when they are young, they might compensate by attempting to gain approval or sense of worth by pursuing image-oriented goals, such as accumulating money or material possessions. In other words, a lack of basic need satisfaction can lead people to develop need substitutes, which can in turn have the ill-fated consequence of continuing to interfere with attainment of the nutrients they really need.

Kasser, Ryan, Zax, and Sameroff (1995) used a sample of mixed-SES teenagers and their mothers to do an initial test of this general reasoning. They investigated the developmental antecedents of placing high importance on the extrinsic aspiration for wealth, relative to intrinsic aspirations such as growth, relatedness, and community. The adolescents provided their perceptions of the degree to which their mothers were democratic, noncontrolling, and warm in their parenting practices, and the mothers also provided self-reports on these same variables. In addition, clinical interviewers made their own ratings of maternal nurturance. Low scores on these dimensions, of course, represent the types of social environments that thwart satisfaction of the children's basic psychological needs. T. Kasser et al. (1995) found that when mothers were low on democracy, noncontrollingness, and warmth, as indexed by any of the three rating sources, the adolescents placed significantly higher relative importance on the extrinsic aspiration for wealth. The results thus suggest that parenting environments that thwart children's need satisfaction facilitate the development of extrinsic aspirations such as wealth that are visible indicators of "worth" and may represent substitutes for basic need satisfaction.

T. Kasser et al. (1995) also examined archival data from the mothers of these teenagers that had been collected more than a decade earlier when the children were only 4 years old. A variable labelled risk, derived from ratings by trained observers, represented mothers' coldness in interactions with their children and rigidity in parenting beliefs. This risk index significantly predicted higher relative extrinsic aspirations for

money in the teenagers, assessed more than a 12 years later. These analyses provide initial support for our developmental speculations that psychological need deprivation can foster overly strong extrinsic aspirations as need substitutes.

One ramification of the development of strong compensatory motives such as extrinsic aspirations is that they not only result from lack of basic need satisfaction but they also tend to perpetuate the lack of need satisfaction because they are likely to keep people focused on the need substitutes or extrinsic goals, thus strengthening the “wrong” goals and exacerbating the negative, ill-being consequences.

We already reviewed considerable evidence showing that there are a variety of negative mental health consequences of extrinsic aspirations, and these can be straight-forwardly understood as examples of the ill-being consequences of having one’s basic needs thwarted. In other words, the development of strong extrinsic aspirations represents the development of compensatory motives that (1) mediate between the initial need thwarting and negative mental health consequences, and (2) support behavior patterns that are risky and can further interfere with basic need satisfaction.

Williams, Cox, Hedberg, and Deci (2000) investigated these hypotheses with high school students. Results showed that adolescents who perceived their parents as less autonomy supportive had significantly stronger relative extrinsic aspirations than those who perceived their parents as more autonomy supportive, and further that those with less autonomy supportive parents and stronger extrinsic aspirations reported more health-compromising behaviors, including the use of tobacco, alcohol, and marijuana. It seems that social environments that interfere with need satisfaction can turn individuals toward goals and activities that serve to compensate for the lack of need satisfaction but may involve serious risks for physical and psychological health.

Acquired motives and motive strength. Earlier in the article, we emphasized that, with our focus on innate psychological needs, we do not assess individual differences in need strength. We contrasted our approach with the tradition of personality theorists who view needs as acquired and therefore focus on the strength of the acquired needs. Here, we can see a partial convergence of the two approaches. Specifically, because we distinguished between the innate *needs* for competence, autonomy, and relatedness and the variety of acquired *motives* such as abasement, acquisitiveness, achievement, and dominance (motives that are not needs according to SDT’s definition), the concept of *motive strength* (as opposed to need strength) does become relevant. In our research on life aspirations such as wealth, image, and fame (which fit in the category of acquired motives) it is precisely the importance or strength of those aspirations that

we used as the basis for making negative predictions about well-being. And, in our theory, it is the degree of basic need thwarting that will predict the strength of motives that are acquired to provide substitute satisfaction. Thus, motivational forces that are innate—namely, the intrinsic needs—are assumed to be essential for everyone, but motivational forces that are acquired will vary in strength as a function of the circumstances in which they were acquired. It is the strength of these latter motivational forces that are important for predicting their consequences.

Although we argued that learned or acquired motives can be derivative attempts to gain satisfaction, we believe that some of the central “needs” studied in the Murray tradition have innate and learned components. For example, consider the need for achievement (nAch), which we would refer to as the achievement motive. The achievement motive is to a substantial degree based in what we consider the innate need for competence (Koestner & McClelland, 1990), yet if one were to define the need for achievement restrictively to represent only what we call the need for competence it is likely that the need would encompass little more than those achievement behaviors that are intrinsically motivated. However, what is coded as evidence for the achievement motive also includes behaviors or ideations based in ego involvements or approval motives. Indeed, the original instructions used to orient people to the thematic apperception test (TAT) from which nAch is often assessed were ego involving by design (Ryan & Manly, in press). In short, drawing all achievement behaviors together under one so-called need for achievement creates problems because people achieve to satisfy various needs and motives, and, in fact, when achievement is powered by compensatory motives it can interfere with satisfaction of the basic needs.

Similarly, the affiliation motive (nAff) is, in our view, based in the need for relatedness, but what is coded as affiliation can also be quite instrumental, aimed for example at acquiring wealth or fame from the people with whom one affiliates. McAdams’s (1989) need for intimacy comes closer to our idea of a relatedness need, particularly for adults. The important point is that although the so-called needs for achievement and affiliation may have innate components, they also include attempts to gain substitute or derivative fulfillments. Thus, in SDT, they are considered motives rather than needs, motives that may stem more or less directly from needs and will accordingly lead more or less effectively to need fulfillment.

Need Thwarting and Regulatory Styles

A second component of the accommodation resulting from thwarted need satisfaction is the development of nonoptimal regulatory styles and motivational orientations. Throughout this article we argued that social

environments that block satisfaction of the need for autonomy promote controlled motivation, that environments that also block satisfaction of the needs for competence and relatedness tend to promote amotivation, and that the controlled and amotivational orientations, relative to the autonomous orientation, have negative effects on performance and well-being. The strengthening of controlled or amotivational tendencies, like the strengthening of relative extrinsic aspirations, can thus be viewed as a mediator between thwarted need satisfaction and various negative outcomes. As such, it is also a means through which basic needs are further thwarted and negative consequences are compounded.

An interesting series of studies by Hodgins and her colleagues (Hodgins & Liebeskind, 1998; Hodgins, Liebeskind, & Schwartz, 1996) examined how people with strong controlled or amotivational orientations tend to behave in ways that further thwart basic need satisfaction. Specifically, they investigated the degree to which perpetrators of difficult social predicaments respond to those predicaments by trying to save face, blaming the others, and aggravating the distress rather than trying to mitigate the awkwardness. The researchers analyzed accounts of the events given by the perpetrators and found that those high on the controlled and impersonal orientations (orientations that are theorized to result from thwarted need satisfaction during development) tended to behave more defensively to protect themselves and in so doing aggravated the discomfort of the others. Such behaviors, of course, would only further frustrate the relatedness need and would also be likely to frustrate the competence and autonomy needs, for although these people may have saved face, their behavior would not constitute true social competence nor would it be autonomous because the individuals were being controlled by their own ego involvements.

Need Thwarting and Behavior Patterns

A third and intertwined component of the responses to need thwarting that are associated with ill-being is the development of rigid behavior patterns that are as adaptive as possible under the hostile circumstances and that help protect people from the inner hurts resulting from the thwarted needs. However, these patterns have the maladaptive features of tending to keep people from dealing with their inner experiences and of tending to persist into new situations in which they are not needed and have negative consequences.

Eating disorders represent an interesting instance of rigid behaviors that result from need thwarting. Clinical accounts suggest that anorexia nervosa is a response to thwarted satisfaction of the needs for

competence and autonomy (e.g., Bruch, 1973). Eating, or more precisely, not eating, represents one domain in which individuals can have control over their own behavior and outcomes and can thus feel effective and in control. Short of being restrained and fed intravenously, persons maintain *de facto* control over this area of their lives. According to Bruch (1973), seriously restricted eating represents a "struggle for control, for a sense of identity, competence, and effectiveness" (p. 251). In this quote, one sees that body control represents, in part, substitute satisfaction prompted by deficits in perceived competence and autonomy and in the expression of one's true self (Ryan, Deci, & Grolnick, 1995).

A study by Strauss and Ryan (1987) provided support for this general dynamic reasoning. They found that women diagnosed with anorexia nervosa had significantly higher scores on the impersonal subscale of the general causality orientations scale (signifying general feelings of ineffectance and lack of agency) and on depression, as well as significantly lower scores on intrapsychic autonomy and mutuality of autonomy and on cohesion, expressiveness, and independence in family relations, relative to a matched control group. These findings thus suggest a link between this rigid behavior pattern and lack of satisfaction of the three fundamental psychological needs.

An extensive review by Baumeister and Scher (1988) of research on self-destructive behavior patterns among nonclinical adults concluded that there is considerable evidence that normal adults engage in a variety of self-defeating behaviors, often ones that involve some gain, but at serious cost. According to Baumeister (1997), such behaviors result either from threats to egotism or breakdowns of self-regulation that entail emotional distress. In terms of SDT, these processes can be understood in terms of controlled regulation and amotivation. Egotism is related to introjected regulation, which, particularly when threatened, is likely to have highly negative consequences. A breakdown of self-regulation is similar to amotivation. The behavior patterns discussed by Baumeister and Scher, which include health care negligence (Sackett & Snow, 1979), face saving (Goffman, 1955), and learned helplessness (Seligman, 1975) are also related to controlled motivation and amotivation. In fact, research has shown that patients are less adherent to medical regimens when their motivation is controlled rather than autonomous (Williams, Rodin et al., 1998), that individuals engage in more face saving when they have a stronger controlled causality orientation (Hodgins et al., 1996), and that people become helpless or amotivated when their needs for competence, autonomy, and relatedness are thwarted (Boggiano, 1998). Thus, the frustration of psychological needs often appears to lie behind various self-defeating behaviors that then un-

doubtedly serve only to cause further need thwarting and to exacerbate the problem.

Needs, Regulation, and Evolution

SDT is a theory of the proximal causes of motivational states and processes formulated in terms of immediate social contexts, developmental histories, and individual differences. We nonetheless suggest that our theory of needs, and of human nature, is consistent with the belief that the distal causes of human psychological functioning lie in evolutionary history. Indeed, SDT's postulate that the needs for autonomy, competence, and relatedness are innate and universal stand in sharp contrast to the standard social science model (see Tooby & Cosmides, 1992) in suggesting that human nature is not wholly plastic or malleable but instead has a deep structure that includes basic psychological needs. Of course, SDT recognizes that there is considerable variation in surface behaviors, rituals, and expressed values across cultures and developmental epochs—variation that is often used by behaviorists, social learning theorists, and symbolic interactionists to argue in favor of the standard social science model. However, SDT maintains that underlying these varied characteristics and behavioral expressions are universal psychological needs that subserve development and well-being, thus representing part of the common architecture of human nature. In arguing for psychological needs as universal aspects of human nature, SDT fits broadly in an adaptationalist perspective that emphasizes how our common evolutionary heritage produces such regularity.

Still, our definition and understanding of human needs place us at odds with some currently prominent approaches to behavioral evolution (e.g., Buss, 1996; Tooby & Cosmides, 1992) that focus exclusively on highly modular and context-specific mechanisms, to the neglect of more broadly designed motivational structures and propensities that are central to the overarching organization of the psyche. For example, Buss argued against principles and processes that operate across content domains, stating that “psychological mechanisms are likely to be domain-specific” (1996, p. 5). Without denying that a rich repertoire of domain-specific psychological functions resulting from natural selection would necessarily be available in the psychic architecture, we argue that fundamental psychological needs do indeed operate across domains and represent broad motivational propensities or functions that are essential for effectively acting and relating in social contexts. Furthermore, regulatory processes that are closely aligned with need satisfaction activate and inhibit evolved, domain-specific capacities. As such, a consideration of the relation of

evolutionary processes to SDT's concept of basic psychological needs is warranted.

Psychological Needs and Adaptive Advantage

SDT proposes fundamental needs: (a) to engage optimal challenges and experience mastery or effectance in the physical and social worlds; (b) to seek attachments and experience feelings of security, belongingness, and intimacy with others; and (c) to self-organize and regulate one's own behavior (and avoid heteronomous control), which includes the tendency to work toward inner coherence and integration among regulatory demands and goals. These three basic psychological needs serve, under appropriate conditions, to guide people toward more competent, vital, and socially integrated forms of behavior. Further, the capacity to be aware of these need satisfactions is, of course, important for attaining them. The general propensities associated with the three needs also convey adaptive advantage, as we now briefly discuss.

Competence. The adaptive consequences of a relatively generalized need for competence are perhaps the most straightforward, because an interested, open, learning organism can better adapt to new challenges in changing contexts. The need for competence, which is prototypically manifest in intrinsically motivated activity, spurs on cognitive, motor, and social growth (Elkind, 1971; White, 1959). Beginning with early motor play, manipulation of objects, and exploration of surroundings, the general competence tendency extends and differentiates toward activities and practices that are specifically relevant to effective social interaction and physical survival, even without making either survival or reproductive skills a proximal aim. If people did not experience satisfaction from learning for its own sake (but instead needed to be prompted by external reinforcements) they would be less likely to engage the domain-specific skills and capacities they inherited, to develop new potentialities for adaptive employment, or both. They would thus be ill prepared for new situations and demands in the physical world, and moreover, they would be less adaptable to the extremely varied cultural niches into which a given individual might be born or adopted. Specifically, during the era of evolutionary adaptation (EEA) interest in challenge and exploration no doubt conveyed advantages, for instance, by aiding in the discovery of alternative food sources, mapping the complexities of game migrations, or taking interest in skills, rituals, and social rules transmitted by other group members.

Effectance motivation and the need for competence that energizes it thus represents a clear instance of a

cross-domain behavioral tendency that, in interaction with the environment, becomes more focused and specialized. Competence propensities, in fact, would facilitate individuals' employment of molecular adaptive capacities, aiding the elaboration, coordination, and application of these capacities. Interestingly, it is precisely the open and yet interactive nature of the need for competence that makes it such an adaptive and deeply structured feature of human nature. It appears that the broadly open (rather than domain-specific) character of competence motivation is shared, to a large extent, by other mammals evidencing protracted dependency periods and significant postnatal brain development. That is, competence motivation fuels activity important to experience-dependent and experience-expectant forms of learning (Greenough, Black, & Wallace, 1987), as well as to the associated structural changes in neural development they entail.

This broad tendency also has functional advantages insofar as it allows the unique talents of individuals in a group to become maximized in niche-relevant ways, and this differentiation may in turn produce benefits for all group members. Indeed, the striving for competence as a relatively general propensity can thus be seen as the route to actualizing specific adaptive competencies and to the flexible functioning of human groups in the context of changing environmental demands. But more pointedly, competence motivation, which has as its proximal aim the pleasure in being effective (White, 1959), is not a content-specific mechanism, but rather is a relatively nonspecific tendency of humans, for whom a curious, assimilative nature is a defining feature.

Relatedness. Similar to competence, the tendency toward relatedness reflects a deep design feature of social organisms rather than a simple gene-behavior link that was added atop other modular mechanisms. In the sweep of evolution the tendency toward social coherence or homonomy has representation in species ranging from slime molds to primates, so much so in fact that the line between individuals and aggregates in many species is difficult to draw (Ryan, 1993). In humans, the need for relatedness has its own species-specific forms of expression, forms that are clearly undergoing continual elaboration over biological and cultural evolution, but it is our view that the need itself remains relatively constant throughout these changes.

During the EEA, human relatedness was not a novel emergent trait but was instead an element of a deep structure that became increasingly elaborated and refined under selective pressures. The tendency toward relatively broad connectedness with others was an outgrowth of the already existing tendencies to care for and protect one's offspring. For primates, who already had a prolonged dependency period and a preexisting

tendency toward reciprocal altruism, the emergence of the hunter-gatherer society, and the new challenges it presented, required an extension of the basic sensibilities of attachment and relatedness to nonkin group members (Wilson, 1993). That is, the tendencies to cohere with one's group, to feel connection and caring, to internalize group needs and values in order to coordinate with others appear to have become selected for when coordination of activity and specialization of labor would have been highly advantageous for groups' becoming dependent on hunting and foraging for sustenance. Under such circumstances, a cohesive group would clearly have provided considerably more protection than a less cohesive social organization (Stevens & Fiske, 1995). In addition to the adaptive value of resource sharing and mutual protection that relatedness affords, the need for belongingness or relatedness provides a motivational basis for internalization, ensuring a more effective transmission of group knowledge to the individual and a more cohesive social organization. Thus, the adaptive advantages of relatedness are clear at the individual level of evolutionary analysis and may also be relevant at the level of group adaptation and survival (Sheldon, Sheldon, & Osbaldiston, 1999).

From the organismic perspective of SDT, relatedness is part of a more general organization tendency evident in animate life because, as social organisms, individuals, when optimally functioning, are organized by and organize themselves with respect to the larger social entity (Ryan, Kuhn et al., 1997). What is dynamically interesting and is the focus of many clinical presentations is the fact that the need for relatedness can at times compete or conflict with self-organizational tendencies, that is, with the need for autonomy. Thus, much of the rich fabric of the human psyche is founded upon the interplay of the deep adaptive tendencies toward autonomy (individual integration) and relatedness (integration of the individual into a larger social whole) that are part of our archaic heritage and will, under optimal circumstances, be complementary but can, under less optimal circumstances, become antagonistic.

Autonomy. SDT makes a strong claim about the universality of a tendency toward self-organization, a view in keeping to a considerable degree with mainstream (e.g., Mayr, 1982), and perhaps not so mainstream (Edelman, 1987), evolutionary thought. Hardly unique to humans, the basic tendency towards integrated functioning is perhaps the most fundamental characteristic of living things (Jacob, 1973). Autonomy, as a human characteristic, is an extension of this deeply evolved tendency in animate life, describing as it does the propensities toward self-regulation of action and coherence in the organism's behavioral aims.

At a phenomenological level, human autonomy is reflected in the experience of integrity, volition, and vitality that accompanies self-regulated action (Ryan, 1993). This autonomous regulation contrasts with regulation based on coercive forces or compelling seductions that override important inner functions, sensibilities, and processes. Heteronomous regulations, too, have a phenomenal aspect; namely, the experiences of pressure and control. The fact that autonomy as a functional property of humans can be described in phenomenal as well as structural terms is not a contradiction. Rather, it is quite consistent with an organismic viewpoint that conceptualizes awareness of perceived causality not as an epiphenomenon but as a sensitivity that subserves adaptation. When awareness is blocked or inhibited, the person is typically less able to engage in the effective self-regulation of action, which is one of the reasons that awareness plays such a key role in the process of healthy, integrated functioning.

Autonomy, as used in SDT to refer to self-organization and self-regulation, conveys considerable adaptive advantage. As Maturana and Varela (1992) pointed out, the more autonomous an individual's actions, the more the individual has specified, processed, and hierarchicalized in an unfettered manner personal needs in relation to environmental affordances. When autonomous, individuals' actions are self-organized with respect to their inner and outer circumstances, instead of being merely cued up or prompted by nonintegrated processes or exogenous pressures. In other words, for humans to function effectively in changing contexts, specific mechanisms cannot simply be elicited automatically by contextual factors but must be brought to bear in relation to a hierarchically organized set of processes, needs, and mechanisms. In fact, when behavior is regulated by nonintegrated, heteronomous processes, disadvantages can be manifold. Consider, for example, the now classic research by Olds (1958) who showed that rats, when their behavior had been entrained by the exogenous application of rewards based in electrical brain stimulation, worked themselves to exhaustion and starvation, thus neglecting important organismic needs and satisfactions. The dominance of behavior by unintegrated forces, such as external coercions and seductive rewards can thus preclude holistic processing (Kuhl & Fuhrmann, 1998) and self-coherence (Ryan & Deci, 2000). Put differently, the evolved capacity for autonomy is the means by which humans can avoid having their behavior easily entrained down maladaptive, even disastrous, paths. Moreover, through autonomy individuals better regulate their own actions in accord with their full array of felt needs and available capacities, thus coordinating and prioritizing processes toward more effective self-maintenance.

In a broad sense, then, autonomy conveys adaptive advantage because it is the very basis of effective behavioral regulation across domains and developmental stages. As such, autonomy cannot be meaningfully viewed as a narrow or domain-specific mechanism. Indeed, the very charge of self-regulatory functions includes coordination of multiple demands from varied domains. Autonomy is thus a broadly applicable design feature that has been elaborated and complexified over our species' history, particularly as the enhancement of the neocortex and its symbolic capacities (Sedikides & Skowronski, 1997) has been realized. The development of an integrated self is thus a reflection of a deep inner design of the human organism toward self-cohesion and the avoidance of self-fragmentation.

When Needs are Thwarted

One of the foundations of modern evolutionary theorizing is that many of our behavioral and affective propensities are contingently displayed because different characteristics have supported fitness and reproductive opportunity in different contexts. Thus, under some circumstances one type of behavioral and affective pattern tends to be emitted, whereas under other circumstances, other patterns are likely to be in evidence.

The idea of multiple regulatory systems emerged clearly from studies of the effects of rewards and other contextual events on intrinsic motivation, internalization, affect, and performance, and indeed has always been implicitly crucial for the differentiation of motivation in SDT. That is, soon after the first studies demonstrating the undermining of people's intrinsic motivation by extrinsic rewards (Deci, 1971), it became increasingly clear that other internally consistent patterns of behavioral regulation and experience occurred under such controlling conditions. In conditions that thwart need satisfaction, people have, for example, been found to be more prone to introject regulations (Deci, Eghrari et al., 1994; Kuhl & Kazen, 1994), act incongruently (Sheldon, Ryan, Rawsthorne, & Ilardi, 1997), or become amotivated (Boggiano, 1998). Similarly, when parents experience threatening and uncertain environments they tend to become more controlling with offspring (Grolnick & Apostoleris, in press). Thus, need-thwarting conditions lead to specifiable patterns of behaviors, regulations, goals, and affects that do not represent the optimal development and well-being that would occur in supportive environments but which would have had some adaptive value under adverse conditions.

An excellent example of how broad need-related issues might catalyze or inhibit specific mechanisms is suggested by recent work on social logic. Cosmides (1989) suggested that humans implement certain

forms of “if-then” logic in social situations, and that such logic represents a cognitive module that evolved to deal with exchange situations, specifically to detect potential cheaters. In support of that view, research showed that greater logical accuracy in if-then thinking was facilitated in social-exchange situations than in abstract problem situations. However, recent work by Dorrity and Aron (1999) suggests that whether or not this module is activated may depend on people’s assessment of whether they are relatively close to the self of the other who is involved in the exchange. The more the other person is a stranger, the more the if-then logic becomes important. That is, whether or not this specific mechanism is activated may be a function of experienced relatedness.

Although humans innately tend toward autonomy, competence, and relatedness, these tendencies are not the only determinants of behavior, and they can be constrained or subverted by other factors such as rewards, punishments, and rituals of specific cultures. What is universal is not the behavioral outcomes, but rather the relation between affordances for need satisfaction and the expression of motivational tendencies. We further suggest that the very concept of well-being, which has been associated with experiences of autonomy, competence, and relatedness (Ryff, 1995), bespeaks an evolved preference for functioning in ways that are consistent with the satisfaction of psychological needs, as opposed to functioning in controlled or compensatory modes.

General Tendencies and Specific Mechanisms

As noted, much current evolutionary theorizing focuses on modular, domain-specific mechanisms, typically hinged to particular environmental inputs (Buss, 1989; Mischel & Shoda, 1995). We, however, consider three types of broad tendencies that we characterize as cross-domain aspects of the human functional design that influence, act as constraints on, and even mediate the evolution of more specialized, narrow mechanisms. These general tendencies, themselves, appear to provide reproductive advantage, but, unlike narrower adaptations, they have considerable openness or plasticity in focus and expression even within individuals—they are displayed in different ways at different periods in the life span and in different social environments. The existence of general tendencies that can be refined during ontogeny is, in fact, one of the features of human nature that separates it from organisms whose brain development and response patterns are less experience dependent. Additionally, considerable evidence suggests common factors by which the varied expressions of common needs are supported or undermined across domains and developmental epochs.

These invariant patterns further justify considering basic psychological needs as molar constructs.

We further argue that one can consider the general functions we ascribe to needs as part of the architecture of mind that helps coordinate and activate lower order adaptations (see also Midgley, 1995). In this regard, Tooby and Cosmides (1992) stated that, “emotions appear to be designed to solve a certain category of regulatory problems that inevitably emerges in a mind full of disparate, functionally specialized mechanisms” (p. 99). Although they did not elaborate this point, it does reveal a recognition of the importance of some higher order self-regulation of behavioral propensities. Still, we argue that needs rather than emotions better serve this function because emotions themselves must be self-regulated for effective functioning, and the basic psychological needs are centrally involved in the processes by which this self-regulation occurs. Emotions, when not brought under regulatory management by the self, can be associated with a variety of maladaptive consequences.

In sum, we agree with Mayr (1982) that the search for adaptive mechanisms must include a concern with general structures and functions that play a central role in the organization of behavior, as well as with specific behavior-gene links that may support them. An analysis of the general functions that we refer to as basic psychological needs cannot be engaged at the same level as more specific mechanisms such as the infants’ tendencies to smile (which subserves relatedness) or the capacity to detect coercion (which subserves autonomy). In fact, basic psychological needs may even mediate the adaptive value of many specific gene-behavior links. As such, new mechanisms could gain reproductive advantage through their impact on primary need satisfaction and the functional outcomes it promotes. In other words, specific mechanisms may enhance or detract from the fulfillment of needs, and, because of that, the mechanisms may yield more or less reproductive advantage to the individuals and groups that express them.

The postulation of needs coordinates and organizes observed, systematic dynamics concerning the central trends and requirements of optimal human development and well-being. Without resolving here the conceptual issues of what properly counts as an adaptation or how specific modules become regulated during ontogeny, we believe the empirical study of psychological needs raises important questions about how to conceptualize the organized, evolved, universal, and yet flexible design underlying human nature. An exclusive focus on modular and highly specific mechanisms leaves us with an accretive, “heap of stones” model of the psyche, analogous to the early behavioristic theories that viewed ontogenetic development as merely an accretion of arbitrary learnings. The psychological system is better characterized as an

organized system, in which selective pressures have systematically favored organisms that, through multiple means, could attend to and satisfy needs. Among other things, this means that insofar as stones (i.e., specific mechanisms) do pile up, they do so in an organized way, and the needs for competence, autonomy, and relatedness provide a means for describing at least part of that organization.

In sum, SDT focuses on human needs in its explication of the proximal (i.e., life-span) causes of motivation, experience, and behavior, rather than their distal (i.e., evolutionary) causes, yet in this discussion we argued that SDT's concept of universal human needs would make sense in an evolutionary psychology that grappled meaningfully with the deep issues of organization and regulation of the adapted elements of human functioning.

A Note on Cultural Evolution

Although we focused this discussion on biological evolution, psychological needs are also highly relevant to the processes by which cultural contents are shaped and retained. That is, psychological needs play a significant role in the creation and selection of novel cultural *memes* (Csikszentmihalyi and Massimini, 1985) and, in turn, the needs are themselves differentially supported or disrupted by existing memes. As we previously suggested (Ryan & Deci, 1985; Ryan et al. 1997), to the extent that a culture, in the process and content of its socialization, transmits memes that are congruent with basic needs, then internalization will more fully occur and the anchoring of culture within the individual will be more stable. Contents or strategies of socialization that are antithetical to basic need satisfaction produce more impoverished forms of internalization, resulting not only in poorer well-being among group members, but also more instability in cultural forms and greater pressure for change. In this way, evolved psychological needs interface with (and constrain) the rapidly changing forces of *cultural evolution* (see also Inghilleri, 1999).

The Relation of SDT to Some Other Current Theories

Hilgard (1987), in an essay on the history of motivation that, in spite of being published in 1987, virtually ignored all of the motivation research on intrinsic motivation, goals, and self-regulation that was done in the 1970s and early 1980s, concluded that motivation was essentially dead as a separable topic in psychology. He did, however, comment that the lack of focus on motivation "may turn out to have been only a brief interlude in the history of psychology" (p. 379). In fact, little

more than a decade after Hilgard's comment was published, it is clear that the near death of motivation as a field of psychology was not a death at all. Rather, it was merely a brief interlude in which the field of motivation was being reborn. A resurgence in motivation research and motivation-related theories is very much in evidence, and this vigorous new field is very much in line with White's (1959) and deCharms's (1968) contentions that a new kind of motivational thinking was necessary. As such, it is dramatically different in nature from the field of motivation of the 1940s and 1950s upon which Hilgard was focusing when he made his comment.

In this section we take a very brief look at some of the newer theories, attempting to draw out some of the commonalities and distinctions between them and SDT. The list of theories we consider is by no means exhaustive. Further, our consideration of these theories is also far from exhaustive and does not do justice to the theories. Nonetheless, our aim in discussing the theories is to further explicate SDT by highlighting some interesting issues that represent points of convergence and divergence between our theory and the others. In this discussion, we focus primarily on the relation of the various theories to the three basic needs even though most current theories have not specified or emphasized needs and some have explicitly eschewed them.

Social-Learning Theory

In the 1950s, as theories of behavior control were changing focus from a history of past reinforcements (B. F. Skinner, 1953) to expectations about future reinforcements (Rotter, 1954, 1966), the social-learning approach began to emerge. Social-learning theories, of which Bandura's (1996) self-efficacy theory is currently the most popular, are examples of the so-called standard social science model (e.g., Tooby & Cosmides, 1992), for they view people's behavioral repertoires and self-concepts as being largely acquired from the social world. Self-efficacy theory has focused specifically on the extent to which people feel capable of engaging in behaviors that will lead to desired outcomes (Bandura, 1977). Given their capacity to alter their environment, establish incentives, and create cognitive self-inducements, people can, Bandura (1989) argued, motivate themselves and be agentic. As such, Bandura proposed that feeling competent to carry out behaviors that are instrumental for attaining desired outcomes is the central mechanism of human agency.

Self-efficacy theory evolved from incentive theories—that is, theories that focused on people's striving to attain desired reinforcements. However, the theory has at times been described as an active-organism the-

ory and a theory of human agency, creating confusion with respect to its actual metatheoretical underpinnings. As noted earlier, the theory contains only one class of motivated behaviors, and the determinants of these behaviors are desiring outcomes and feeling able to attain them. All motivated activity is considered agentic because it involves individuals' acting when they feel able to attain desired outcomes. Because the theory does not distinguish between autonomous and controlled behaviors, it maintains, at least implicitly, that people who are pawns to reward contingencies or to other controlling events are agentic so long as they feel able to carry out the activities they feel coerced or seduced into doing. It is here that inconsistencies in the apparent metatheory of self-efficacy become apparent, because without acknowledging intrinsic activity and an inherent growth tendency, self-efficacy theory is not equipped to deal with a more complex and meaningful conceptualization of agency.

As for autonomy, Bandura (1989) stated that autonomy would be evident only if "humans serve as entirely independent agents of their own actions" (p. 1175), a characterization that allowed him to dismiss the concept out of hand. Clearly, this characterization bears no relation to the concept of autonomy contained in SDT and is inconsistent with the way the concept is treated by modern philosophers (e.g., Dworkin, 1988; Ricoeur, 1966). By using this characterization, self-efficacy theory has avoided dealing with the important human issue of autonomy. By contrast, other perceived control theories addressed the concept of autonomy and acknowledged that it cannot be reduced to perceived control (e.g., Little, Hawley, Henrich, & Marsland, *in press*; E. A. Skinner, 1995).

In terms of our three needs, self-efficacy theory is concerned almost exclusively with competence, but the theory explicitly shuns White's (1959) postulate of an innate effectance motivation. In self-efficacy theory, perceived competence or self-efficacy is said to be acquired domain specifically, and self-efficacy has value in specific domains because it leads to desired outcomes. Although self-efficacy theorists have been vague on this point, any value that self-efficacy might have in its own right is apparently acquired through processes that are essentially analogous to secondary reinforcement. Thus, the self-efficacy theory view stands in sharp contrast to our idea of a *need* for competence, which implies that the experience of competence in and of itself is a source of satisfaction and a contributor to well-being over and above any satisfaction resulting from the outcomes that competence might yield.

In terms of SDT, the important implication of viewing efficacy as an instrument for goal attainment, and thus paying no attention to the need for competence or to the other psychological needs, is that one loses the meaningful basis provided by the needs concept for

differentiating the processes and contents of goal pursuits. Thus, as already noted, there is no distinction in social learning theory between efficacious behavior that is autonomous versus controlled. Similarly, there is no basis for predicting that different goal contents, if equally valued and efficaciously pursued, would have different well-being consequences.

Terror Management Theory

For more than a dozen years, the team of Greenberg, Solomon, and Pyszczynski (1997) has been exploring phenomena such as acquiring self-esteem and values from one's culture. Their Terror Management Theory (TMT), which builds on the ideas of Becker (1973), suggests, in brief, that humans are unique in their capacity to experience an awareness of death, an awareness that left unmodulated would leave them terrified. According to TMT, avoidance of this profound, often nonconscious, form of anxiety is a central human motive, leading people to adopt the practices, beliefs, and values of their cultural world. By cloaking themselves in the standards of society and striving to match those standards, people obtain self-esteem and ward off the terror associated with their inevitable degradation and death. By attaching themselves to ambient social meanings people can maintain a sense of continuity and avoid feelings of isolation and despair.

TMT shares a critical element with the social learning and symbolic interactionist theories, namely the proposition that values, behaviors, and self-esteem are adopted from the ambient culture. However, TMT provides a particularly rich and interesting account by making their adoption a function of a deeply seated motivational dynamic—namely, the need to defend against the potentially paralyzing terror of mortality.

Central to TMT is the process of anxiety reduction, and in this sense TMT has parallels with aspects of Hull's drive-reduction theory which maintained that many behaviors are acquired as a function of anxiety reduction (i.e., reduction of the drive to avoid pain). And, much as drive theory was unable to explain curiosity and exploration in terms of anxiety reduction (White, 1959), TMT has had difficulty reducing such growth-motivation phenomena to terror management dynamics, especially because intrinsic motivation and other tendencies toward competence, autonomy, and relatedness are evidenced well before infants develop the capacity to be aware of their own future nonexistence. Accordingly, drawing on the work of Rank (1989), recent statements of TMT suggested a dual-process model, in which defensive and growth motives are postulated (e.g., Greenberg, Pyszczynski, & Solomon, 1995). This creates a greater possibility for compatibility between TMT and SDT.

From the SDT perspective, cultural internalization can vary in its degree of assimilation to the self, with introjection (which encompasses contingent self-esteem) being a more defensive form of internalization and integration being a more authentic form. We believe that many phenomena such as prosocial behavior or striving to live up to cultural standards that have been observed following mortality-salience manipulations could be controlled, resulting from introjection, or, alternatively, could be autonomous, stemming from the idea that awareness of mortality can reawaken one's focus on intrinsic needs, such as that for intimate relationships. Thus, the enactment of these behaviors may, though need not, be based in defensive processes.

Grappling with death is indeed a major challenge in people's lives, a challenge that, in a certain sense, is inevitably far beyond optimal. As such, many people may in fact deal with the issue of death in a primarily defensive way. Yet the awareness of death can, as well, bring people into a more authentic engagement with life, which in essence means integrating their mortality into their sense of self and functioning more autonomously with a focus on satisfying their intrinsic needs. There is no shortage of literary and philosophical accounts of people becoming more autonomous or authentic in their lives as a function of scrapes with death.

As another point of comparison, when the etiology of behaviors that are defensive, controlled, or inauthentic, are examined, SDT's principle account concerns the thwarting of the three basic psychological needs. The anxiety associated with death is viewed by SDT as an emotion to be managed and regulated by processes that are energized by the three basic needs, so we have seen no necessity for considering the avoidance of death anxiety as a basic need. In fact, in a sense, the mortality-salience manipulations could stimulate various threats to personal identity, prime among them being the threats of losing one's relatedness to loved ones, or the cessation of autonomously valued personal projects. After all, death represents the cessation of all need satisfactions and the termination of self-organization.

Finally, we raise an issue that McCall (1977) referred to as the *can versus do* problem. Specifically, work in SDT has involved many experimental lab studies demonstrating how conditions that facilitate versus forestall need satisfactions *can* affect outcomes such as persistence, the quality of experience, creativity, and well-being. However, to ascertain whether these processes *do* have relevance in the real world, we examined them in such venues as schools (e.g., Ryan & Grolnick, 1986), clinics (Williams, Grow, et al., 1996), and the workplace (Deci, Connell et al., 1989). These field studies show clearly that when people are deprived of opportunities for autonomy, competence, or relatedness they suffer in terms of motivation and well-being. Similarly, TMT has demonstrated in myriad experimental studies that mortality salience *can*,

under specific conditions, spawn particular types of behaviors. Yet, TMT-based research has less clearly established the degree to which mortality *does* impact people in their ongoing lives, or even more importantly, what social-contextual interventions could be done to facilitate positive and ameliorate negative effects of death salience. Although we agree that existential anxiety may be a built in feature of humanity, we argue that knowing this fact and even knowing what defensive processes it may initiate does not supply us with clear directions for facilitating positive social change (i.e., those that promote human growth and well-being).

Control Theory

Carver and Scheier's (1998) control theory of self-regulation is cybernetic in orientation, focusing as it does on an auto-correcting mechanism, like Miller, Galanter, and Pribram's (1960) Test, Operate, Test, Exit (TOTE) unit, that keeps organisms directed toward valued goals. As noted earlier, theirs is primarily a theory of the mechanisms through which people stay engaged with goals as a function of effectance-relevant feedback. Thus, Carver and Scheier have been more concerned with the *how* of goal pursuit once a goal has been selected, whereas SDT has been more concerned with the *what* and *why* of goal selection and pursuit. Still, this attempt to characterize the theories is not wholly exacting because Carver and Scheier attempted to explain the why of behavior with their cybernetic tools and we addressed the processes of persistence or effort maintenance using our need-based theory.

Contrasts between control theory and SDT were recently highlighted when Carver and Scheier (1999b), after suggesting that the concept of autonomy may be illusory, attempted to reinterpret the issue of autonomy versus control using control theory concepts (see also Carver & Scheier, 1999a; Ryan & Deci, 1999). Specifically, their theory involves two types of regulation, organized with the concepts of approach versus avoidance and BAS (i.e., behavioral activation system) versus BIS (i.e., behavioral inhibition system) (Gray, 1990), and they argued that when goals involve avoiding disfavored outcomes the nature and quality of regulation is different from when goals concern approaching favored outcomes. Carver and Scheier (1999b) then proposed that SDT's distinction between autonomous and controlled regulation can be understood in approach-avoidance terms, with autonomous motivation representing an approach mode in which the BAS dominates, and controlled motivation representing an avoidance mode in which the BIS dominates.

There is, however, ample evidence that the approach-avoidance distinction cannot encompass the autonomy-control distinction, nor can it account for

different types of approach behavior that are differentiated in SDT. The most notable instance concerns the phenomenon out of which the field of self-determination evolved, namely, the frequently replicated finding that pursuing tangible rewards undermined autonomy and intrinsic motivation (Deci, Koestner et al., 1999a). Behavior that is oriented toward attaining rewards is, at least in many cases, clearly approach oriented, and yet it is typically accompanied by an external perceived locus of causality (Reeve, Nix, & Hamm, 1999) and is thus not autonomous. However, because negative effects on interest and free-choice persistence would have to be attributed to avoidance rather than approach, the approach-avoidance model cannot provide a satisfactory account of the phenomenon. Similarly our more subtle distinctions between types of approach motivation (such as intrinsic motivation versus identified regulation) cannot be deduced from an understanding of the motivations simply being approach oriented (see, e.g., Koestner & Losier, in press).

We can, as well, identify autonomous avoidance behaviors, as when a person fully endorses and thus autonomously follows a physician's admonition to stop smoking and avoid the accompanying health risks (Williams et al., 2000). Although Carver and Scheier (1999a) would presumably argue that the patient is "approaching health," there is little compelling indication that people who are autonomously motivated to stop smoking do so to approach health rather than to avoid disease and death. Thus, one can find instances of controlled approach and controlled avoidance goals and of autonomous-approach and autonomous-avoidance goals.

Although autonomy and control cannot be reduced to approach and avoidance, we do not dispute that controlled behaviors will often, and perhaps frequently, have an avoidance-motivation character in so far as contingent punishments and negative consequences are often the conditions under which controlled behaviors are acquired. Still, the fact that there are clear instances of approach- and avoidance-controlled motives suggests that the relation between autonomy and approach, and between control and avoidance, are not identities at all, but rather correlations.

Similarly, another difference between Carver and Scheier's theory and ours concerns the issue of goal contents. Our work has begun to document how different goal contents can be more versus less conducive to health and well-being as a function of the relation of goals to basic psychological needs. Yet cybernetic approaches are inherently bereft of need concepts and, indeed, seem to suggest that what lies at the top of goal hierarchies is not organismically determined, so there is no basis for interpreting the findings that different goal contents have different consequences. Indeed, in a recent response to comments about SDT and other theories, Carver and Scheier (1999a) stated that they see

our psychological needs simply as another set of goals, and they expressed doubt about whether there are any universal needs. In this sense, they specify no contents to human nature and place themselves squarely in the standard social science model of a relatively empty and highly programmable organism.

Still, there have been many points of convergence between control theory and SDT, in the past (e.g., Plant & Ryan, 1985) and more recently (see, e.g., Sheldon & Kasser, 1995), and the richness of their framework and its metatheoretical consistency make it an excellent one for comparing and iterating ideas. Cybernetic models can aptly capture aspects of goal regulation, and Carver and Scheier's work, specifically, has a particular aptness for dealing with the hierarchical nature of goal-related regulations. By incorporating the concepts of innate needs, they would be able to deal with the fact that humans are not optimally focused on just any goals but rather are most fully functioning when they pursue goals that fulfill needs—needs which, over eons of time, have furthered their self-organization, effectiveness, and interrelatedness and, thereby, their overall adaptability.

Achievement Goals

As noted earlier, Nicholls (1984) and Dweck (1986) outlined theories that differentiated goal pursuits in terms of the contrast between demonstrating competence and developing competence. Nicholls referred to these as *ego involvement* and *task involvement*, respectively, and Dweck referred to them as *performance goals* and *learning goals*. Nicholls characterized ego involvement as entailing an external, self-evaluative focus in which individuals seek to demonstrate high ability, whereas task involvement pertains to people being less concerned with self-evaluation and their standing relative to others. When task involved, people work to improve their mastery and competence. Dweck added that performance goals involve continual tests of people's abilities, especially relative to others, whereas learning goals involve opportunities to learn new things. Thus ego involvement or performance goals involve attempts to gain positive or avoid negative judgments about one's abilities, whereas task involvement or learning goals concern improving one's abilities and expanding one's competencies.

When people hold performance goals, Dweck (1999) suggested, they are proud of easy successes, base their self-esteem on whether they have been able to demonstrate to others that they are competent, and tend to become helpless when they face possible failure. Dweck and Reppucci (1973) found that people with performance goals tend to blame themselves (i.e., their abilities) for failures, and Nicholls (1984) suggested that such people sometimes engage in

self-handicapping strategies so that, if they fail, they will have an attributional basis for face saving. In contrast, when people have learning goals, they seek challenges, gain self-esteem from being fully engaged in an activity or using their skill to achieve something valued, and tend to focus on how to improve in the face of possible failure.

Dweck (1985) proposed that when children are oriented toward learning goals, the intrinsic motivation system is involved in initiating, sustaining, and rewarding the activity, whereas performance goals can supplant or undermine intrinsic motivation. In so doing, she was drawing a link between intrinsic motivation and learning goals on one hand, and extrinsic motivation and performance goals on the other. Nicholls (1984) made a similar point about task involvement and ego involvement. We, too, think that task involvement and learning goals bear considerable relation to intrinsic motivation when applied to the achievement domain. As such, Ryan (1982) showed that ego involvement, relative to task involvement, when experimentally induced, undermined intrinsic motivation, a finding that has been confirmed by recent meta-analyses using free-choice behavior (Rawsthorne & Elliot, 1999) and performance (Utman, 1997) as outcomes.

However, although the concepts of learning goals and task involvement appear to align well with intrinsic motivation, the concepts of performance goals and ego involvement do not align well with the construct of extrinsic motivation. Specifically, according to SDT there is a full array of extrinsic motivations that differ greatly in their relation to self-determination and, accordingly, have different effects on performance and affect. As we argued, extrinsic motivation can be internalized to differing degrees, and the more fully it is internalized and integrated the more positive are its consequences. This means that a performance goal can, according to SDT, be pursued for relatively controlled reasons (with an E-PLOC) or for relatively autonomous reasons (with an I-PLOC). Knowing that one has performance goals is not enough to predict the quality of performance and experience. Ego involvement is thus only one type of extrinsic motivation (specifically it is a form of introjected regulation), yet performance goals could also be enacted out of identifications or external regulations, each of which has its own unique character.

This theoretical issue, although important, does not negate the general convergence of evidence from achievement goal theories and SDT concerning the optimal design of learning environments. Both bodies of work suggest that the use of salient performance-based rewards, social comparisons, and normatively based goal standards as motivational strategies yield manifold hidden costs. Both bodies of work also suggest that classroom environments that are less evaluative

and more supportive of the intrinsic desire to learn provide the basis for enhanced achievement and students' well-being.

In sum, we believe it is necessary not only to consider what goals people pursue but also *why* they pursue them (i.e., the PLOC of the goal pursuits) in order to understand the goals' effects. The effects of the performance goals are likely to be quite different depending on whether they are pursued for relatively autonomous or relatively controlled reasons. Furthermore, because the learning versus performance goals and ego versus task involvement formulations are specific to performance issues, they do not directly speak to the influence of other goal contents such as social or relatedness goals that can affect achievement (see, e.g., Wentzel, 1999). A consideration of the needs that are subserved by goal pursuits (whether oriented toward achievement or other human endeavors) would afford a broader examination of the correlates of goal-directed behavior.

Flow Theory

Flow theory (Csikszentmihalyi, 1975), like SDT, began with a focus on intrinsic motivation. The concept of flow concerns the experiences of total absorption in an activity and the non-self-conscious enjoyment of it. When people experience flow, their activity is said to be autotelic, which means that the purpose of the activity is the activity itself, and we often spoke of flow as the prototype of intrinsically motivated activity. According to Csikszentmihalyi, people will experience flow when the demands of the activity are in balance with individuals' capacities. Thus, like Deci (1975), Csikszentmihalyi suggested that intrinsically motivated behavior requires optimal challenge. Too much challenge relative to a person's skills leads to anxiety and disengagement, whereas too little leads to boredom and alienation. The postulate of optimal challenge is fully consistent with SDT's specification of the competence need as a basis for intrinsic motivation (Deci & Ryan, 1980), for it is success at optimally challenging tasks that allows people to feel a true sense of competence.

Another area of correspondence between the two theories is the importance both place on phenomenology. As Csikszentmihalyi (1990) pointed out, although many theories focus on distal causes of motivation, his own focus is on the proximal causes of motivation, so his emphasis is on the inherent satisfaction or enjoyment that accompanies efficacious action. The view that being competent at challenging activities yields enjoyment is, of course, quite different from that of the theories in which competent engagement with challenging activities is valued only because of its instrumentality for incentives or other desired outcomes.

Accordingly, Csikszentmihalyi's idea of a phenomenal experience being a sufficient reason for action is quite consistent with SDT, and specifically with our focus on the *functional significance* of events as a determinant of motivation (Deci & Ryan, 1985b).

Despite these and other points of convergence, there are several interesting points of divergence. Perhaps the most important is that flow theory does not have a formal concept of autonomy, instead basing intrinsic motivation only in optimal challenge (which, as a concept, is relevant primarily to competence rather than autonomy). SDT, on the other hand, has always maintained that even optimal challenges will not engender intrinsic motivation or flow unless people experience themselves as autonomous in carrying them out—that is, unless the behaviors have an I-PLOC. Although Csikszentmihalyi has at times referred to the idea of autonomy, it has not been represented as a formal element in the theory.

Another difference concerns the relevance of the needs concept itself. As we understand it, flow theory does not endorse the idea of a need for competence (or, obviously, a need for autonomy), instead viewing the concept of needs as a distal explanation that is not needed. As emphasized throughout this article, however, the concept of needs is a central unifying basis for SDT's explanations and interpretations, and we argue that it serves effectively to specify the contexts in which optimal challenges will and will not lead to flow and to the vitality that accompanies it. It is for this reason, we believe, that flow theory, although it provides an account of intrinsic motivation, has not been invoked in the literatures concerning, for example, the potential undermining effects of rewards or controlling environments on intrinsic motivation. An exclusive focus on optimal challenge cannot address the dimension of perceived locus of causality.

Additional points of divergence fall primarily in the category of phenomena and processes that are contained in SDT but are not well addressed by flow theory. For example, flow theory does not deal with more versus less volitional forms of extrinsic motivation that result from the degree to which external regulations have been internalized and integrated with the self.

This is particularly at issue when flow theory gets extended to the problem of cultural change and variation (see, e.g., Inghilleri, 1999), which in our view is a problem that necessitates a consideration of the need for relatedness and the concept of internalization, as well as the concepts of challenge and flow. To their credit Csikszentmihalyi and Massimini (1985) were among the earliest theorists to use a psychological viewpoint in attempting to account for cultural transmission and the survival of memes, and our critique of that work (Ryan & Deci, 1985) was not so much pointing to errors of commission as it was suggesting that flow does not, by itself, provide a satisfactory account

of how cultures pass on nonintrinsically motivated practices and values. The dynamics of integration, as manifest in internalization of extrinsic motivation, must be considered to deal effectively with this problem (Ryan, 1995).

In sum, although the theoretical convergence is considerable, we believe that a consideration of the needs for autonomy, competence, and relatedness would allow a fuller account of flow and would provide a basis for addressing phenomena such as internalization and volition that have been only in the peripheral vision of flow theory.

Attachment Theories

In the fields of social, personality, and developmental psychology, there has been a great deal of research on the importance of intimate relationships (Reis & Patrick, 1996). Much of this work has been done in the attachment framework (Ainsworth et al., 1978; Shaver, Hazan, & Bradshaw, 1988), although there have been many other approaches as well (e.g., Blais et al., 1990; Rusbult & van Lange, 1996). The attachment framework in particular posits that the relationships between infants and their primary caregivers has become the prototypes for subsequent relationships with others and that secure attachments with caregivers are crucial for establishing healthy relationships in later life and for experiencing health and well-being more generally. Although most attachment researchers do not typically discuss people's having an innate need for relatedness, the early formulations (Bowlby, 1958) did assume a fundamental need for close connections with others, and the recent formulations have the idea of a need for relatedness as an implicit aspect. Further, the findings that proximity seeking appears to be universal and to lead to ill-being when thwarted are wholly consistent with the idea of a need for relatedness.

As noted, in SDT, which assumes innate needs, the central individual difference concept is not need strength but rather is causality orientations that are assumed to be developmental outcomes resulting from an interaction between individuals' needs and the social context that supports versus thwarts them. In a parallel fashion, in attachment theory, the central individual difference concept is not the strength of people's need to be attached (everyone is assumed to have this propensity) but rather is attachment styles that are theorized to result from an interaction between children's attempts to be related and the nature of the social context (i.e., caregivers) that supports versus thwarts those attempts.

Thus, the self-determination and attachment approaches use individual differences in regulatory or interactive styles to predict behavior, affect, and

well-being, and because these styles are outcomes of the developmental interaction between people's innate needs and the degree to which the social environment allows their satisfaction, different styles in each approach can be viewed as a central predictor of the individuals' well-being. Within self-determination theory, a strong autonomy orientation has been found to be strongly associated with psychological health, and within attachment theory, a secure attachment style has similarly been associated with strong psychological health.

There is, however, one important issue around which attachment theory and SDT differ, and that concerns the proximal causes of insecurity versus security—that is, of one's sense of relatedness—in social interactions. Attachment theory has traditionally emphasized that people's attachment styles (working models) are developed in interactions with primary caregivers and show a high degree of stability over time and generality across partners. SDT's approach, however, gives more emphasis to the immediate social context. Although we believe that security versus insecurity in a particular relationship is influenced by early or distal models, we also consider proximal supports for basic psychological needs in any relationship to play a crucial role in predicting feelings of attachment in that relationship. Thus, we argue, people show significant within-person variations in attachment security across relationships, and this variation is a direct function of the partners' responsiveness to and support of the person's basic psychological needs.

In support of this view, La Guardia, Ryan, Couchman, and Deci (2000) recently used a hierarchical linear modelling approach to examine between- and within-person variations in attachment style. Remarkably, when looking across multiple attachment figures, considerably less than one-half the variation in attachment scores was attributable to the typically studied between-person differences in security of attachment. People showed substantial variability in their attachment styles to mothers, fathers, romantic partners, and best friends, for example, and this within-person variability in security was shown to be a function of the degree to which the various social partners were responsive to the individuals' needs for autonomy, competence, and relatedness. Thus, even given individual differences due to early caregiver effects, people fluctuate in attachment styles as they move among more or less nurturant social partners.

Summary and Integration

Self-determination theory is concerned primarily with explicating the psychological processes that promote optimal functioning and health (Ryan & Deci, 2000). It employs an organismic-dialectical

metatheory in which humans are assumed to be active, growth-oriented organisms who are naturally inclined toward the development of an organized coherence among the elements of their psychological makeup and between themselves and the social world. However, these natural developmental tendencies toward autonomy (i.e., internal integration) and homonomy (i.e., social integration), like other natural tendencies such as intrinsic motivation, are assumed to require nutrients or supports from the social environment to function effectively.

More specifically, the natural human propensities toward self-organization and an organized relation to a larger social structure are understood to require satisfaction of the three innate or fundamental psychological needs for competence, autonomy, and relatedness. Thwarted satisfaction of these needs results invariably in negative functional consequences for mental health and often for ongoing persistence and performance. Accordingly, needs are the linking pin between the affordances and demands of the social world on one hand and either people's natural tendencies toward growth and well-being or their accommodative tendencies toward self-protection with the accompanying psychological costs on the other hand.

We define needs as innate rather than learned, thus creating a similarity between our approach and that of learning theorists such as Hull. However, unlike the learning theorists, we are concerned primarily with needs defined at the psychological level rather than the physiological level. As such, there is a similarity between our approach and that of personality theorists such as Murray (1938), who, however, considered needs as largely acquired or learned and thus focused on individual differences in need strength. Conceptualizing needs as innate propensities at the personality level of analysis leads to the definition of needs in terms of the psychological nutrients (viz., competence, autonomy, and relatedness) that are necessary for healthy development and effective functioning. This definition not only gives content to human nature by detailing what is essential for natural processes to operate optimally, but, of even more empirical importance, it allows for prediction of the social conditions that promote high quality development and performance and of the person factors that, at any given time, contribute to that high-quality development and performance.

The concept of basic psychological needs has served as a means of organizing and integrating a wide range of research related to social contexts, motivational orientations, goal contents, healthy development, high-quality performance, maintained behavior change, and mental health. The concept of needs, although once prevalent in empirical psychology, is now largely ignored in favor of the concept of goals. Our research shows, however, that a consideration of basic psychological needs provides a basis for predicting

when the efficient pursuit and attainment of goals will be associated with more positive versus more negative performance and well-being outcomes.

Specifically, the research reviewed in this article has shown that social contexts supportive of the needs for competence, autonomy, and relatedness: (a) maintain or enhance intrinsic motivation; (b) facilitate the internalization and integration of extrinsic motivation resulting in more autonomous motivational or regulatory orientations; and (c) promote or strengthen aspirations or life goals that ongoingly provide satisfaction of the basic needs. In turn, intrinsic motivation, autonomous regulation of extrinsic motivation, and intrinsic aspirations were associated with positive affective experiences; high-quality performance, particularly on heuristic activities; maintained change of healthy behaving; and better mental health. The findings appeared with respect to persons (i.e., individual difference) and contexts (i.e., differences in the quality of the social environment). Conversely, research showed that the frustration of basic needs was associated with less intrinsic motivation, more controlled regulation and amotivation, and stronger extrinsic aspirations, which in turn lead to diminished experience, performance, and wellness.

Specification of the basic psychological needs for competence, relatedness, and autonomy has thus allowed us not only to explain specific phenomena but has provided a framework for integrating these findings and for deriving additional diverse hypotheses. This framework, which is built upon the dialectical relation between people, as innately active organisms, and the social environment in which they attempt to satisfy their basic needs, suggests that the degree of basic psychological need satisfaction influences development, performance, and well-being. In short, needs specify the conditions under which people can most fully realize their human potentials.

Notes

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Edward L. Deci and Richard M. Ryan, Department of Psychology, University of Rochester, Rochester, NY 14627. E-mail: deci@psych.rochester.edu and ryan@psych.rochester.edu

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