Social Rationality, Self-Regulation, and Well-Being:
The Regulatory Significance of Needs, Goals, and the Self

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Introduction

Clearly, humans influence their own well-being, by and large in a way that is positive for their well-being, albeit not always for their well-being in the long run. Another way of saying this is that humans are bent upon improving their condition in an agentic way; they are thus self-regulators, and maybe this is the root meaning of "rationality." In fact, this paper suggests that when we speak of rationality we should actually refer to self-regulatory processes. But then, the important question is of course how humans self-regulate. It seems to be a complex combination of processes, and this paper is devoted to presenting them in some detail.

Any theory that would answer the question how humans self-regulate has to deal with what self-regulation may actually do. What are the recurrent problems that impact the well-being of humans and about which they can do something by self-regulation? For example, do humans need the subjective experience of needs? Do they have to be able to pursue goals? Do they have to deal with possibly conflicting goals? Do they have to deal with regulating their emotions? Do they have to deal with uncertainty? Do they have to have a sense of self? Do they have to understand other minds? The more we simplify the list of problems, the simpler the theory can be. However, if we make the list too simple, we will miss out on important aspects of how people influence their own well-being and how the environment helps or hinders them in this regard. For example, there are versions of rational choice theory that would assume that there is no other goal than maximizing one’s own utility (which is fully defined by stable preferences and given constraints) and that there are no preferences that could create problems of inner conflict. The theory also assumes that even though there are emotions, uncertainty, and problems with understanding other minds, one can safely abstract from these issues. This kind of rational choice theory then boils down to a theory of self-regulation for which almost all the problems about influencing one’s own well-being are shifted to the constraints—that is, to dealing with external resources, given the
(shadow) prices of relevant goods, linked to a uniform self-regulatory capacity. The implication is that one can safely disregard differences in self-regulatory capacity. However, given such differences, the perceived constraints also differ. For example, for somebody with low self-regulatory capacity, changing long-term opportunities are not likely to have much effect. Worse, all constraints that affect self-regulatory capacity itself are ignored. Thus, for example, if somebody is surrounded by others with low self-control, his own self-regulatory ability will suffer (see Christakis and Flower 2007; Evans and Kutcher 2011). There is overwhelming evidence that self-regulatory capacity differs and that it matters for income, status, health, crime, and many other important outcomes of behavior that would possibly be covered by rational choice theory (see, for example, Moffitt et al. 2011). It differs as a trait but also by circumstance and by development over the life course. For social policy this may be a very important issue. As Moffit et al. (ibid.: 2697) put it: “Understanding the key ingredients in self-control and how best to enhance them with a good cost-benefit ratio is a research priority.” We need a more complex theory of self-regulation, and I suggest that it is one that fully acknowledges the social roots of human rationality.

**Social Rationality and Self-Regulation**

Maybe the best starting point to think about self-regulation is human evolution: due to evolutionary pressures, self-regulation and social regulation are intimately intertwined for human beings. The basic idea of a sociologically informed evolutionary theory is twofold: (a) there have been selective pressures concerning the individual with regard to self-regulation, but (b) for primates and especially for humans, living in groups has individual adaptive advantages if the groups can deliver collective goods. For primates, and humans in particular, the processes of getting offspring to be reproductive is much too complex to allow simple solutions to the collective good problem (such as protective advantages of swarms or the workings of chemical signals as in ant colonies; see Cacioppo et al. 2006; Hrdy 2009). This makes it likely that for humans, there was also group selection with regard to groups being able to make individuals contribute to collective goods (Wilson 2006). Dunbar (2003) has provided evidence for the fact that the human neocortex (which contains the frontal lobes with the “command post” of self-regulation [see Goldberg 2009]) has evolved mainly to allow higher primates to function in groups. For this reason Dunbar calls the neocortex “social brain.” Human neural, hormonal, cognitive, and motivational structures thus coevolved with the relational and group contexts, and there is a functional relationship between these individual and social structures in the sense that the human capacities developed for the sake of adaptive advantages that can be derived from the social context. In other words, much of human self-regulatory capacity is dedicated to making humans able to take care of themselves, to elicit the cooperation of others, and to be able to adequately cooperate with others. The functionality of self-regulation for one’s own well-being (one could say “one’s rationality”) is thus thoroughly social in nature.

As a result of these evolutionary selective processes, there are many evolved
and more or less automatic self-regulatory processes that make people want to do what is socially expected or socially adaptive. For example, bonding with one's infant and mating are adaptively and socially very important processes that are to a considerable degree influenced by physiologically triggered shifts in preferences. Plasma oxytocin stimulates bonding behavior by the mother with her infant (Feldman et al. 2007). Oxytocin also affects interpersonal trust (Kosfeld et al. 2005). Various hormones thoroughly affect preferences when people fall in love (Fisher, Aron, and Brown 2006). Also, the brain works very much with cost/benefit calculations. Many animals, including humans, deal with scarcity of energy in such a way that exertion of energy is related to hard-wired processes of cost–benefit analysis (via dopaminergic processes; see Denk et al. 2005; Niv 2007). In turn, what an individual considers cost and what benefit and the subjective expectations concerning cost and benefits are wide open to social influence. For example, in the evolutionary environment it was often adaptive to follow those who are visibly more successful than oneself. This leads to social imitation from the top down and to a probably hard-wired tendency to have one's likes and dislikes be influenced by those one admires (status effect; see, for example, Cohen and Prinstein 2006; Galliani and Vianello 2012), by the group one identifies with (for example, Cohen 2003), and by how useful or thwarting things are for one's goal pursuit (Ferguson and Bargh 2004). Similarly, the expectations about costs and benefits are heavily influenced by the stereotypes about social categories such as status, race, gender, and age groups; these stereotypes steer expectations about the competence of self and others, likelihood of success, trustworthiness, effort level, helping behavior, and so forth (Shelly 2001; Tiedens, Ellsworth, and Mesquita 2000).

The development of the social brain went hand in hand with the development of quite a variety of self-regulatory processes. Self-regulation is thus not a uniform capacity. Rather, for each individual, there are multiple self-regulatory systems, subject to different degrees of volitional control. They may or may not act in harmony and answer different problems. For example, at one end of the continuum of volitional control, there is the autonomic nervous system, which regulates bodily functions such as heart rate but also sexual desire. Then there are processes like motivated cognition that serve self-enhancement and that are partially open to volitional control. At the other end there are highly controlled actions, such as suppressing a negative utterance in the face of the boss. In the following, I will try to sketch the architecture of self-regulatory processes. To simplify things, I will dichotomize the continuum and distinguish only between lower- and higher-order self-regulation. The lower-order self-regulatory processes, such as self-enhancing biases, belong mostly to the “old” brain (for example, basal ganglia, thalamus). The higher-order regulatory processes, such as emotion regulation, belong mostly to the “new” brain (the neocortex, especially the frontal lobes) and govern (a) the situational appropriateness of lower-order self-regulation, (b) the balance between various lower-order self-regulatory processes, (c) resource-oriented behavior, and (d) norm-oriented behavior. The higher-order regulation steers processes in just about every region of the brain, while the lower-order regulation operates in a more localized manner. Even though they both steer self-regulation, there is an important difference: the degree to which context is taken into account
(Goldberg 2009). For example, the more hungry people are, the more they will focus just on eating and the less they will consider matters of taste, ownership, etiquette, longer-term health effects, and the like. By contrast, higher-order processes push back this immediacy and singular focus in favor of attention to ownership, etiquette, health, and so on.

The social brain is involved in a number of different sets of self-regulatory processes that are interrelated but should also be studied separately. There are features of human functioning that are not traditionally looked at as belonging to self-regulation but that in fact can fruitfully be treated as such. For example, needs themselves, not just need satisfaction, can be interpreted as part of self-regulation. I will discuss three sets (see Figure 2.1): need-related self-regulation, goal-related self-regulation, and finally self-regulation dedicated to stabilizing the self. In each set, we find lower- and higher-order self-regulatory processes that are of great importance for the work of sociologists because they strongly affect social and institutional problems and problem solutions.

**Fundamental Needs as Self-Regulatory Mechanisms**

The concept of “need” (as different from “want”) is not very sharply defined, but it basically refers to the combination of finding something rewarding, being aroused to seek satisfaction, and experiencing pathological effects from deficits in satisfaction (with the last characteristic missing in wants; see Deci and Ryan 2000; Baumeister and Leary 1995). A person whose basic needs are unfulfilled will have a low score on well-being. This view is by now widely shared (Deci and Ryan 2000; Lyubomirsky, King, and Diener 2005; Maslow 1971; Baumeister and Leary 1995; Steverink, Lindenberg, and Slaets 2005). The self-regulatory aspect of needs is that they are cognitively represented and set in motion action toward their satisfaction. Thus having a certain need also means having a self-regulatory mechanism to do something about its satisfaction (not necessarily consciously; see Tiffany and Conklin 2000).

Adaptation to a changing environment under selective pressures can thus lead to the development of new needs. These new needs make the organism find things rewarding that are adaptive in the new environment and to go after the new rewards. From the point of view of the social brain, the main innovation in needs for primates and especially for human beings is social needs, and needs concerning resources that are, to a large extent, tied to the social context. Thus we have to identify what these needs are. For this purpose, we also have to identify physical needs, because their satisfaction is likely to interact with the satisfaction of social and resource-related needs.
The identification of needs from this evolutionary view has been worked out over the years under the name of social production function theory (SPF theory). In order to stress the important role of resources and of self-regulation concerning the acquisition and use of resources, the approach taken by SPF theory is that need satisfaction can best be viewed in terms of production functions (see also Stigler and Becker 1977). Human beings are producers of their own well-being in terms of need satisfaction. A particular level of need satisfaction (the output) is “produced” by a particular input. For this reason, we will first deal with production needs, before we come to discuss substantive needs.


Self-regulation by needs first of all focuses on needs that are related to the quality of the production function (improvement of the input/output ratio in production functions). Because deficits in need satisfaction are damaging, effectiveness of given resources is of great importance and has found its way into self-regulation by needs. First of all, autonomy is essential for choosing inputs in production functions (according to their effectiveness), and Ryan and Deci claim that autonomy is a basic need even in collectivist cultures (see Chirkov et al. 2003; see also Leotti, Iyengar, and Ochsner 2010). Secondly, competence is important for resource use (see also Deci and Ryan 2000). To improve one’s competence is to improve the amount of output (need satisfaction) for a given amount of input. For example, improving one’s social skills allows one to gain social approval with less effort or fewer resources. This need to improve one’s competence may be strongest in childhood. White’s view of “mastery” (1959) and Bandura’s concept of “self-efficacy” (1997) refer to the result of the satisfaction of this need. In certain cultures, this need for improving one’s competence can become strongly emphasized and linked to identity formation, in which case it would cover what Maslow (1971) called “self-actualization” (see Lindenberg 1996).

The quality of a production function also depends on stability conditions. For example, when the effectiveness of a given means changes in unpredictable ways, self-regulation becomes difficult or impossible. Highly insecure property rights or random violence paralyze self-regulation and even reduce cognitive abilities. For being able to invest in the future, predictability is especially important. Human beings need a certain amount of safety/security (including stability/predictability) with regard to their production functions and, being bent on improvement, they will do something about it (Heiner 1983; Maslow 1971; Mendes et al. 2007). This need can also be interpreted as a desire for the world to conform to expectations about possibilities for goal achievement. Related to safety/security is the need for structure (or order), which has been given a prominent place in the literature. It is also a production need in the sense that agentic need satisfaction depends on having or creating “meaningful” situations—that is, situations with discernible structure (Neuberg and Newsom 1993; Proulx, Heine, and Vohs 2010). This need may actually be in the service of aiding predictability.

In short, striving for autonomy, competence, safety/security (with stability, predictability), and structure can be taken to be basic human “production
needs” that evolved through the adaptive advantage of individuals who are bent on improving their condition in an agentic way.

**Substantive needs: physical and social well-being**

Already in Durkheim we find a strong emphasis on what he calls “the dual character” of humans: “man is double, that is, social man superimposes himself on physical man” (Durkheim 1951 [1897]: 213). Both sides have their own needs. This is also the view derived from the social brain hypothesis. Small wonder that in one way or another, this dichotomy keeps turning up. We find it in Maslow’s need hierarchy (1971) (physiological needs and love/belonging and esteem needs). We also find it in Ford’s taxonomy (Ford and Nichols 1987; and Ford 1992), which is based on a dichotomy of “within person” (for instance, arousal, physical well-being), and “person-environment” needs (for instance, superiority, belongingness).

*Physical needs*

What are the most plausible candidates for universal physical needs? There is, of course, a question about the level of abstraction. A great number of concrete needs can be taken together under the concept of comfort. “Comfort” refers to the degree to which a person is free of noxious stimuli (such as hunger pangs, thirst, pain, and so forth). There is a general need to increase one’s own comfort. This is not exclusively a human need, but some stimuli that create discomfort may be specific to humans (such as sympathetic reactions vis-à-vis suffering others), or even specific to cultures (such as reactions to being exposed to certain sounds).

A second plausible candidate for a universal physical need is the opposite of tension reduction: seeking excitement, arousal, satisfying curiosity. Ford and Nichols (1987) list both arousal and exploration as basic needs. There is overwhelming evidence that individuals seek arousal, which led Hebb (1958), Berlyne (1960), and others to abandon the classical drive theories in favor of a theory of arousal, or electrical activity of the brain. Far from seeking either comfort or arousal, individuals often seek both at the same time. A need for arousal and exploration can be covered by the concept of the need for stimulation (see also Scitovsky 1976; Wippler 1990). These needs can be reliably measured (see Nieboer et al. 2005).

*Social needs*

The needs on which social well-being depends have been variously identified by philosophers, anthropologists, sociologists, and psychologists. There is a great deal of convergence among them, in the sense that everybody is agreed on the fact that human beings crave a positive opinion from other human beings. The universality of a need is best examined from the point of view of evolution. From this and, as we will see, also from a sociological point of view, it makes sense not to lump all forms of social approval into one. There are first the two quite distinct approval needs, variously identified in the literature as status (domination, prestige) and affection (love, attachment, intimacy). This distinction also links to Bakan’s concepts (1966) of agency and communion needs. However, for Bakan (ibid.) and his followers (such as McAdams et al. 1996), agentic needs covered both production needs (for example, autonomy) and substantive needs (such as
status) under one concept. As already mentioned, from a self-regulatory point of view, it is useful to separate these needs (see Steverink and Lindenberg 2006). Let me begin with status.

**Status.** The evolutionary view that status is a universal human need may have become established with Barkow (1989), who pointed to the importance of relative standing for preferential access to resources (for example, mating opportunities, food, allies) and the likelihood that primates have been selected to seek higher relative standing. It is important to observe that for humans, the basis for status differences has shifted in the course of evolution from domination toward prestige, with a related shift in strategies to achieve and maintain status (Gilbert 2003). In dominance hierarchies, status is related to coercion, threats, and inspiring fear, whereas in prestige hierarchies, status is related to the display of competence and talent and to eliciting positive affect (such as admiration; see also Gilbert and McGuire 1998, Galliani and Vianello 2012; van Vugt 2006). However, even among humans, domination hierarchies have not vanished and may even merge with prestige hierarchies (see Fessler 2004; Halevy et al. 2012).

Besides the evolutionary research, empirical evidence for the ubiquity of status striving comes from various contemporaneous sources. For one, there is historical evidence, such as the research by Max Weber concerning the importance of “honor” in virtually every society. Second, Steverink and Lindenberg (2006) found that older people who don’t seem to care about status anymore, do care and profit for their own well-being from status pursuit, if the opportunity for such pursuit arises. Third, Frank (1985) provides much evidence for the ubiquity of status striving in contemporary society. Fourth, the claim that status as a goal in itself is universal has recently received experimental support by a study of Huberman, Loch, and Öncüler (2004). All in all, the evidence strongly speaks for the assumption that status striving is a universal need. However, there is also the other side. In order to get status that is not based on threat or fear, there must be people who grant status. Social needs must have evolved with their counterpart, so the need for acquiring status must have evolved with the need to evaluate others in terms of their valued skills and possible or actual contribution to the collective good, flanked by emotions (such as deference and admiration, superiority) (Ridgeway et al. 1998; Galliani and Vianello 2012; Halevy, Chou, and Galinksy 2011).

**Affection.** The insight that affection is a need may seem obvious today (see review by Pendell 2002), but there were times when influential people were convinced of the opposite. Orphanages and charity for adults in the nineteenth and first half of the twentieth century were mainly focused on physical aid, and expert opinion even found affection a potential danger (see Blum 2002). In the early 1940s, Maslow (1943) presented a very different picture. He described love and affection as basic needs and maintained that “practically all theorists of psychopathology have stressed love needs as basic in the picture of maladjustment. Many clinical studies have therefore been made of this need and we know more about it perhaps than any of the other needs except physiological ones.” Despite this pronouncement, the need for affection became widely accepted only after the famous study of rhesus monkey infants by Harlow (1958), Maslow’s teacher. Roughly at the same time, Bowlby and Fry (1953) researched the importance
of secure attachment of children to certain adults. Even though attachment (as protection against threat) is not exactly the same as affection (see MacDonald 1992), the two concepts are often confounded, and Bowlby’s research helped to draw professional and public attention to the importance of affection. Many have since proclaimed a need for affection (Schultz 1958).

Seen from an evolutionary point of view, the important role of affection (warmth) is connected to the social brain (Dunbar 2003). The relatively larger neocortex of human beings allows living in larger groups but also necessitates what MacDonald (1992) calls “high-investment parenting.” The long period of dependency of the infant requires prolonged parental care (especially mother-child) and support from the male partner, secured through pair bonding (see also Buss 1994), and from others (HRdy 2009). Affection facilitates both pair bonding (Weisfeld 1999) and positive parenting (Russell 1997), including nurturance, empathy, and transfer of scarce resources, and it increases a child’s willingness to be influenced by the adult (Eberly and Montemayor 1999). Cultural transmission, so important for culling adaptive advantages from living in groups, is greatly aided by this willingness to be influenced (Euler, Hoier, and Rohde 2001).

There is also considerable evidence that deprivation of affection leads to psychopathology and ill health. For example, Uchino, Cacioppo, and Kiecolt-Glaser (1996) and Cacioppo et al. (2000) review a great number of studies which show that affection (emotional support) has reliable positive effects on physiological functioning, and lack of affection has negative effects (impaired cardiovascular functioning, hormonal functioning, immune functioning).

Behavioral confirmation. In evolutionary terms, the great importance of group membership for one’s own adaptive advantages makes it likely that there has been a selective pressure to be sensitive to signals about one’s standing in the group and that a need has developed to feel accepted by the group. Baumeister and Leary (1995: 497) had called this “need to belong” a “powerful, fundamental, and extremely pervasive motivation.” They too link this need to its evolutionary roots about the importance of belonging to a group. Because the “need to belong” is actually a mixture of the group-related need and affection, and because the two should be treated separately, I use a different term, “behavioral confirmation” (see Lindenberg 1996), even though that term is also used in the literature to indicate a specific aspect of the sensitivity to the opinion of others—namely, that people become what they believe others think of them (see Snyder and Klein 2005). The term “behavioral confirmation” as used here refers to the fact that in virtually everything they do (including uttering opinions and expressing feelings), people seek the confirmation of others. Status and affection are something else. Status is a relative standing within the group, and affection is social approval central to close relationships and generally more unconditional than behavioral confirmation (see Baldwin and Sinclair 1996). Feeling accepted and confirmed by the group (irrespective of one’s status position and irrespective of affection in close relationships within the group) is a separate social need. Failure to conform to group standards is often accompanied by negative emotions, prominent among them shame (Fessler 2004; de Hooge, Breugelmans, and Zeelenberg 2008). All three social needs can be reliably measured (see Nieboer et al. 2005).
Lower-order and higher-order need-related self-regulation

Lower-order self-regulation via needs consists most of all of the ability of need states to affect cognitive and motivational processes in the service of adaptive behavior. This is not a conscious process, and it can go wrong (Tiffany and Conklin 2000). For example, there is much research on people not knowing what they want (Ariely, Loewenstein, and Prelec 2006; Hsee and Hastie 2006), or people being subjectively wrong about thinking they want something (Gilbert and Wilson 2000).

A related lower-order self-regulatory process has to do with a particular sensitivity to situational opportunities. It works via cues in the environment that trigger urges. The limbic system can amplify the incentive salience of reward cues in the environment, which makes a person temporarily change preferences as a result of the opportunity of getting a particular reward at that moment. Since lower-order self-regulatory processes disregard the wider context (such as longer term behavioral consequences), this cue sensitivity can also be the source of adaptive problems that have to be dealt with by higher-order self-regulation (see, for example, Bernheim and Rangel 2004).

Social emotions are self-regulatory devices to help satisfy social needs and to indicate that behavior might have to be changed for better need satisfaction. For example, the negative affect produced by social disapproval helps alert people to the danger of being rejected by the group and to adapt their behavior in such a way that they are accepted. Leary (see Leary et al. 1995; Leary and Baumeister 2000) has called this mechanism “sociometer.” The sociometer effect, however, is limited. As mentioned above, it is one of the defining characteristics of a need that a deficit in need fulfillment will lead to pathological consequences. Thus, if for example behavioral confirmation is a need, then deprivation in this area can also lead to pathological consequences rather than to functional repair work. Once the deficit in behavioral confirmation is large (for example, when one is fully rejected by one’s ingroup), there is little impetus left to make amends. At best, if one is optimistic about success, one seeks new circles (Maner et al. 2007). A large deficit in behavioral confirmation may altogether reduce goal-directed behavior at restoring it. Thus one may lose agentic pursuit of need satisfaction (say, through becoming lethargic; see Twenge, Catanese, and Baumeister 2003), become hostile toward one’s own (former) ingroup (Twenge et al. 2001; Maner et al. 2007), and become less likely to act in a prosocial way, even to others outside one’s former group (Twenge et al. 2007).

Higher-order need-related self-regulation

An important higher-order form of self-regulation is the ability of the brain to deal with scarcity of resources, especially energy (see Denk et al. 2005; Niv 2007). Humans (and also other animals) deal with scarcity of energy in such a way that exertion of energy is related to hard-wired processes of cost-benefit analysis. However, these cost-benefit calculations are often not conscious. For humans, in any case, the inputs into these calculations, such as expectations and evaluations, are subject to influence from the environment.

Other important higher-order need-relational forms of self-regulation concern the ability to be agentic and stay agentic in the face of failure and the ability to balance the satisfaction of needs (Steverink, Lindenberg, and Slaets 2005).
The ability to be and stay agentic refers to the capacity to gain and maintain a belief in personal competence, control, or self-efficacy (Bandura 1997). It also refers to the ability to keep a positive frame of mind, even in adversity. People with a positive frame of mind are less likely to be discouraged and to become paralyzed in the face of rejection (Pass, Lindenberg, and Park 2010) or failure (Taylor et al. 2003), whereas negativity can create emotional and behavioral disorders (Lengua and Long 2002).

The ability to balance need satisfaction concerns the capacity to seek out synergetic satisfaction of various fundamental needs and the capacity to balance needs satisfaction now and in the future. A synergetic kind of need satisfaction (also called “multifunctionality”; see Steverink, Lindenberg, and Slaets 2005) leads to higher levels of well-being (Sheldon and Niemiec 2006) and makes resources that allow multifunctional satisfaction of physical and social needs (such as intimate partners) particularly important (Nieboer and Lindenberg 2002). The definition of a good intimate relationship is virtually identical with multifunctionality: the relationship is stimulating, physically comforting, socially affectionate, and it increases both a feeling of self-worth (status) and a sense of belonging (behavioral confirmation). The satisfaction of each of these needs can aid the satisfaction of the other needs (synergy). This implies that multifunctionality is particularly productive of subjective well-being and that loss of multifunctional relationships belongs to the most dramatic reductions in subjective well-being (see Nieboer, Lindenberg, and Ormel 1998–99; Lane 2000).

Balancing short-term and longer-term need satisfaction has important positive effects on well-being (Prenda and Lachman 2001). When impaired, this kind of self-regulation may be the most damaging for well-being (see Moffitt et al. 2011), and it does not concern only the satisfaction of needs but also the balance of overarching goals (see below).

Disturbances in need-related self-regulation (and thus deficits) can derive from highly asymmetric salience of one of the needs. For example, substance addiction will increase the need for comfort to a degree that it interferes with multifunctionality (Hirschman 1992). Also, a particularly high need for stimulation creates high risk taking and jeopardizes the satisfaction of the other needs (see Sijtsema et al. 2010). People with a particularly high need for status tend to dominate and thereby reduce the ability to realize both affection and behavioral confirmation (see Sijtsema, Veenstra, Lindenberg, and Salmivalli 2009).

Self-Regulation via Goals

Self-regulation concerning needs overlaps with another set of self-regulatory processes that are distinctive enough to be treated separately: goals. Goals are mental representations of desired states, but they are at the same time elaborate processes of self-regulation. Lower-order goal-related self-regulatory processes contain (a) the ability to monitor the degree to which a goal that is presently focal has been achieved, to detect errors, and to react to this information in such a way that, when the goal is realized, one turns to another goal, or, when progress is not satisfying, to take action for improvement (see Carver
and Scheier 1998). They also contain (b) emotional responses to success and failure in goal-pursuit that aid in a quick determination of the direction of action (approach or avoidance, see ibid.). Finally (c), they contain the ability to deal with goal conflicts by inhibiting incompatible goals. Goal pursuit is not necessarily conscious (see Bargh et al. 2001).

OVERARCHING GOALS AND GOAL-FRAMING THEORY

Other self-regulatory functions of goal-processes (including higher-order self-regulation) are particularly present in overarching goals. Overarching goals are all by themselves a form of self-regulatory devices because, when they are activated (“focal”), they coordinate a great number of cognitive and motivational processes. This allows the individual to be focused and prepared for action (all the way to the motoric level) at the same time. When such a goal is focal, it organizes cognitions and evaluations in a semimodular way and it selectively activates hardwired and learned modules. A focal high-level goal can thus be seen as a composite module, comprising a particular selection of semimodules and hardwired and learned submodules. In that sense, goals create domain specificity and selective sensitivity to specific inputs. For example, the high-level goal “to act appropriately” is likely to make situationally relevant norms more cognitively accessible; make people particularly sensitive to information about what is expected; activate the modules to process information on gaze and on certain facial expressions of approval and disapproval; and activate response tendencies and habitual behavioral sequences concerning conformity to norms (such as facial expression, shaking hands, keeping a certain distance to the other person, helping in need, and so forth). It also activates expectations about how other people are likely to act and positive evaluations of the means to reach the goal (Ferguson and Bargh 2004). This power of overarching goals to coordinate a large number of cognitive and motivational processes is the basis for the goal-framing theory on overarching goals (Lindenberg 2001b, 2006, 2008; Lindenberg and Steg 2007). This theory specifies three goal-related self- regulatory processes:

a. the ability to have goals that set the mind by coordinating cognitive and motivational processes (“overarching goals” called “goal-frames” when activated);

b. specific overarching goals that regulate tasks that are instrumental but different from need satisfaction;

c. processes that balance the relative strengths of overarching goals in favor of adaptive behavior.

Three goal-frames

Goal-frames are activated (that is, focal) overarching goals; they “frame” the mind. Need satisfaction refers to many different needs, but the overarching goal with regard to need satisfaction is to improve (or maintain, as the case may be) the way one feels at the moment. Thus the most basic goal-frame is what is called a hedonic goal-frame. It activates one or more subgoals that promise to improve the way one feels in a particular situation (such as avoiding effort, avoiding negative thoughts and events, avoiding direct uncertainty, seeking direct pleasure, seeking direct improvement in self-esteem, seeking excitement,
and the like). Its time horizon is very short and the criterion for goal realization is an improvement in the way one feels. People in a hedonic frame are also especially sensitive to what increases and what decreases their pleasure and affects their mood. For example, in a hedonic goal-frame, people are likely to react much more strongly to being made to feel bad, say, by being treated unfairly, than in the other two goal-frames. As overarching goal, the hedonic goal-frame is not purely a lower-order self-regulatory process but, surely in comparison with the other two overarching goals, it is strongly linked to lower-order processes (McClure et al. 2004).

The hedonic goal-frame is oriented toward the here and now. The ability to be concerned about resources in a focused way comes from another overarching goal, which, when activated, is called a gain goal-frame. It will make people very sensitive to changes in their personal resources. Its time horizon is middle- or long-term, and the criterion for goal realization is an improvement of (or prevention of decrease in) one’s resources or efficiency of resources. When this goal is focal, subgoals having to do with resources (such as saving money, increasing one’s income, dealing with threats to one’s financial security) will be easily activated; and subgoals, having to do with the way one feels and with normative behavior (see below), will be more or less inhibited—that is, they are pushed into the cognitive background. Even though both hedonic and gain goal-frames can be said to be linked to rewards, they are linked to different kinds of rewards and to different time perspectives, even in the neural systems (McClure et al. 2004).

Note that norms can play an important role in a gain goal-frame to the degree that the individual is focused on costs for norm-conformity. For example, cheating is against the established norms, but in a gain goal-frame only the expected costs (say, in terms of a fine or reputational damage) of cheating will be considered, not any feeling of “obligation.” For people in gain goal-frame, when a particular good in the supermarket is more expensive than another of comparable quality, not much attention will be paid to the fact that one was produced in an environmentally friendly way while the other was not, even if the person values a sustainable environment. In short, in such a goal-frame, norms play a role only as sources of constraints (such as disapproval or a fine).

A gain goal-frame flanks need satisfaction in the sense that it focuses on the resources necessary for need satisfaction. However, the social brain also contains a goal-modus in which individuals focus on being members of a group. When activated, it is called a normative goal-frame, which covers all sorts of subgoals associated with appropriateness (such as behaving the right way, contributing to a joint project, showing exemplary behavior). It will make people especially sensitive to what they think one ought to do. When in a normative goal-frame, the important aspects of a situation are normative, both in the sense that one is sensitive to “oughts” according to self or others and in the sense that one is sensitive to what one observes other people do (corresponding to the distinction made by Cialdini, Reno, and Kallgren [1990] on injunctive and descriptive norms). For example, a person in a normative goal-frame is not likely to throw a piece of trash on the street because that is inappropriate. When people are in a normative goal-frame, subgoals having to do with the way one
feels and with personal resources are pushed into the cognitive background. Thus, for example, people who see a situation as a joint project (in a normative goal-frame) will contribute more to a collective good than people who see the situation as an “economic” one (in a gain goal-frame, see, for example, Pillutla and Chen 1999). A normative goal-frame is linked to feelings of “oughtness” about situationally relevant norms. This feeling contains at least three elements: the subjective importance of the norm; the tendency to react negatively to norm violations by others; and a tendency to feel obliged to follow the norm oneself. Like the other two goal-frames, the normative goal-frame is also linked to a particular neural system (Mendez 2009; Moll et al. 2005).

*Balance: background goals and the a priori strength of goal-frames*

There are two important additional points to be made about the goal-frames that have to do with higher-order self-regulation. The first point concerns the fact that the modularity of goal-frames is porous, that it is open to some influence from the background goals, an important reason for modularity to be “semi.” This makes possible the advantage of focus and coordination derived from overarching goals without the cost of complete neglect of the other two overarching goals. From the cognitive background, the other two overarching goals can strengthen or weaken the relative weight of the foreground (focal) goal. Motivations are thus rarely totally homogeneous, as we know from experimental evidence and daily experience. More often than not they are mixed, and it depends on the relative strength of the foreground and background goals to determine what the final effect will be. For example, the goal to eat (a hedonic goal) may be focal and the goal to remain healthy (a gain goal) may be in the background. Köpetz et al. (2011) showed that when the goal to eat is activated and its salience is boosted, then subjects, asked to choose between various kinds of foods, do not make much difference between high- or low-caloric foods; they eat almost everything that is equally tasty. By contrast, when the focal goal to eat is not boosted, then subjects are still focused on food, but the background goal (health) becomes relatively stronger and subjects become quite discriminating: they choose more low-caloric food.

These effects of background goals imply that even in a dominant normative goal-frame considerations about gains are not completely gone. Conversely, experimental evidence shows that people rarely act completely egotistically, even if their main goal is gain. Rather, even then they seem to be somewhat restrained by normative concerns (see Camerer 2003; Ligthart and Lindenberg 1994). At any time, one goal is focal and influences cognitive process the most (that is, it is a goal-frame), while other goals are in the background and increase or decrease the strength of the focal goal to a greater or lesser degree. How does this work?

Often the goal-frame and background goals will be in conflict. For example, if being cooperative is quite expensive, the normative goal-frame and the gain goal in the background are incompatible. This may not change the goal-frame from a normative one to a gain goal-frame—that is, the background motive may not affect the orientation (the ordering of alternatives is still in terms of appropriateness, not in terms of price), but it may lead to the choice of a less appropriate (but cheaper) alternative. In this case, price will affect the choice
but less than appropriateness. If goal-frame and background were reversed in this example, appropriateness concerns would affect the choice less than price (see examples below).

The background goals do not necessarily weaken the workings of the goal-frame. When they are compatible with the goal-frame, they strengthen it. This is particularly important for the normative goal-frame, which, as I will discuss in a moment, is a priori the weakest goal-frame that needs the most support (from compatible background goals) in order to withstand the weakening effect of conflicting background goals. What actually happens is that alternatives may serve both the focal and the background goal(s) to various degrees. For example, up to a point, community pharmacists may both advance their professionalism and commercial interests. But when making profit becomes more prominent, the two goals become conflictual (see Cancrinus et al. 1996). When there is a conflict, alternatives that serve background goals the best serve the focal goal quite badly, and vice versa. When there is compatibility, alternatives that serve the focal goal well will also serve the background goal well. As will be shown, this is the basis for balancing the overarching goals. Often, both compatible and incompatible background goals will be present.

In sum, motives are mostly mixed in the sense that both foreground and background goals are operative. For example, the normative and gain motives often mix, but it makes a big difference whether people are in a gain goal-frame and don’t go all out in the pursuit of gain, or whether they are in a normative goal-frame and cut corners because of the influence of gain motives. This difference lies in the fact that the focal goal, and not the goal(s) in the background, governs the selection and representation of preferences and constraints.

Second, a priori, the three goal-frames are not likely to be equally strong. This asymmetry is a lower-order self-regulatory device that makes great evolutionary sense. The hedonic goal-frame, being directly related to need satisfaction and thus being the most basic, is very likely to be a priori the strongest of the three goal-frames. In other words, in order to displace the hedonic goal from the foreground, the gain and normative goals must have additional supports. Because, in evolutionary terms, the group is there for the adaptive advantage of the individual and not the other way around, the normative goal-frame is, a priori, the weakest. The gain goal-frames, being linked to one’s own resources, is in between. In order to withstand the onslaught of conflicting hedonic goals, gain and normative goal-frames need to be supported by compatible goals in the background. These supportive background goals are, in turn, often dependent on institutional arrangements. As Weber (1961) has shown, the gain goal-frame needs institutions (such as religion or secure property rights) that allow the individual to act on behalf of a reasonably well-established future self. The normative goal-frame is even more dependent on external support, be it through institutions and moralization (see Lindenberg 1983, 1992; Rozin 1999), or explicit disapproval for not following the norm (see Tangney and Dearling 2002).

Just how precarious the normative goal-frame is can be demonstrated with an experiment we performed, concerning the norm of stealing (Keizer, Lindenberg, and Steg 2008). We placed a very noticeable envelop with a
transparent window in a public mailbox, but we did it in such a way that it stuck out and people walking by could clearly see what was inside. What they could see was a five Euro bill peaking through the window of the envelope. The question was how many people who passed the mailbox would go so far as to take the envelope with them. The results showed that without graffiti 13 percent of all passersby took the envelope, and that with graffiti this percentage more than doubled (27 percent). Thus, if one lives in an environment with many indicators of low concern for acting appropriately, there is a risk that self-regulation will be impaired simply because of disorder in the social environment.

**Balance: changing the relative weight of gain and normative goal-frames**

The relative weakness of the gain and normative goal-frames compared with the normative goal-frame would mean a permanent dominance of the hedonic goal-frame were it not for the higher-order self-regulatory capacity to seek and or create extra support for the a priori weaker goal-frames. Goal-frames cannot be directly chosen, but they can be made more likely or more stable by changing the environment, by distraction, or by conjuring up images (Mischel and Ebbesen 1970). In the literature, this is often referred to as “self-discipline”—that is, an effortful resistance to being tempted by hedonic goals at the expense of gain or normative goals (Baumeister and Vohs 2007). But because the gain goal is still relatively stronger than the normative goal, self-discipline is also applied to situations in which people are tempted by personal advantage not to act normatively (Keizer et al. 2008). Self-discipline is thus a particular kind of self-regulation that has to do with balancing the overarching goals by effortful control.

When the weaker overarching goals have relatively little support, they can be strengthened somewhat by effortful control. However, this uses both physical and mental energy and leads to depletion, which in turn diminishes the relative weight of the normative goal-frame (DeWall et al. 2008) or of the gain goal-frame vis-à-vis the hedonic goal-frame by increasing risk-taking (Freeman and Muraven 2010). The ability to regulate one’s emotions also belongs to this realm of self-regulation. Emotions such as fear or anger make it difficult to sustain a gain or normative goal-frame, and they can be socially very disruptive. Emotion regulation is a crucial element in social competence (see Denham et al. 2003; Schultz et al. 2001), and lack of it can have severe long-term consequences in terms of occupational downward mobility, erratic work lives, and problematic partner relationships (see Caspi, Elder, and Bem 1987). The inability to self-regulate hedonic goal-frames also makes people smoke and eat more than they would like to, lowering their subjective well-being (see Stutzer and Frey 2007).

The point is not that successful self-regulation does away with the hedonic goal-frame. Not showing emotions when it is called for (say, when your mother dies) is socially also inadequate. Some people have managed to stabilize their normative goal-frame to such an extent that they have to plan times for hedonic experiences (see Kivetz and Simonson 2002). Conversely, temptations are not always a danger for the stability of a normative goal-frame. It has been shown that being exposed to temptations can actually strengthen the normative
goal-frame (see Fishbach, Friedman, and Kruglanski 2003), so that normative
goal-frames in very sheltered environments may be particularly susceptible to the rare intrusion of hedonic or gain opportunities (think of Dürrenmatt’s play “The Visit of the Old Lady”).

There are supports for the weaker goal-frames that lower the needs for effortful control and thus also lower depletion effects. From what was said above about the power of cues that show deviant behavior, it follows that a very important source for weakening or strengthening the normative goal-frame is the behavior by others. In other words, very important social influences derive from the fact that the goal-frame of people in the surrounding also influences the stability of one’s own goal-frame (“goal-frame resonance,” see Lindenberg 2000; and “goal contagion,” see Aarts, Gollwitzer, and Hassin 2004). Hence, one of the most basic forms of self-regulation is to remove oneself from unwanted sources of influence, either physically or by shifting attention (Hoch and Loewenstein 1991; Mischel and Ebbesen 1970), or by removing the unwanted sources of influence themselves. Thus, for example, cleaning up physical disorder is likely to stabilize people’s self-regulation (by removing cues of other people’s transgressions; see Keizer et al. 2008). But there is also social disorder, and one may or may not be able to clean it up. For example, the behavior of high-status people showing disrespect for norms has a particularly strong effect on the normative goal-frame (Cohen and Prinstein 2006). This means that politicians and celebrities can have a considerable negative influence on people’s self-regulatory ability, an effect that is exacerbated by the fact that the powerful often use norm violations to demonstrate their power (Van Kleef et al. 2011).

Peers may be individually less influential than high-status people, but then they mostly come in groups and thus exert considerable power over goal-frames of the members. For example, being in a group of peers who seek fun and entertainment (a hedonic goal-frame), it is difficult to keep up a normative goal-frame (Sentse et al. 2010). If one wants to keep up a normative goal-frame, one is likely to proactively avoid the group, or if one is already in it, to leave it, if possible. Here, timing is of the essence. If one waits too long, the contagion will have progressed beyond the point at which self-control is likely to be strong enough to battle the effect of goal contagion and make one leave the group. For good or bad, the company one keeps may thus have a lot to do with the goals one pursues. The same effect has been observed with moods (Neumann and Strack 2000). Goals and expectations are influenced by one’s mood. If one is in a group of people who are in a bad mood, one’s own mood is likely to be negatively affected, and one would have to remove oneself early on from the group in order to escape this influence. James (1890), always attentive to issues of self-regulation, advises people to “accumulate all the possible circumstances that re-enforce the right motives” (123).

Yet, some influences are difficult to escape. Children rarely can escape the influence of their parents, even if these parents beat them, are neglectful, and humiliate them. Even if they could escape, they often would not be able to improve their condition much by doing so, because they have a high chance of ending up in institutionalized care or no care at all. This does not only hamper the execution of self-regulation, but also the development of self-regulatory abilities. School contexts can help in this regard. Coleman and Hoffer (1987)
found that in the United States children from disadvantaged family backgrounds do better when they are placed in school environments that require disciplined work (such as much homework, participation in academic programs, provided by Catholic schools compared with private and public schools). Another example is the finding that the adult time horizon for financial planning is strongly influenced by early parental influences on the child’s extension of the self into the future (Hershey, Henkens, and van Dalen 2010). A low extension hampers self-regulatory ability (see Nenkov, Inman, and Hulland 2008). Thus the inability to escape certain environments as a child can have long-term consequences.

There are also path-dependent effects regarding opportunities and the ability to use them. If the environment is not conducive to the consideration of future consequences, be it because of goal contagion or of highly uncertain futures, people will be more frequently confronted with negative life events, at least a good deal of which are likely due to failures of self-regulation (see Brady and Matthews 2002). Research shows that people from lower income classes have more difficulty dealing with reasoning that is related to a gain-goal frame and necessary for handling economic decisions (such reasoning in terms of costs and benefits and ignoring sunk costs; see Larrick, Nisbett, and Morgan 1993). Such influences are not just concerning the future orientation (gain goal-frame) but also the normative goal-frame. For example, lower class youth have been found to have much more trouble recognizing general social norms (see Parker and Fishhoff 2005). In part, the described effects can also be circular. For example, socioeconomic status can be interpreted as an indicator of influential environments with regard to health-related lifestyles (smoking, drinking, eating, sleep habits). In turn, negative health indicators (such as obesity) may contribute to locking people even more into a lower socioeconomic status (Mulatu and Schooler 2002).

Probably even more important for self-regulation is the exemplary behavior of others as a cue that strengthens one’s own normative goal-frame. Thus exposing oneself selectively to influences on one’s overarching goals is perhaps the most important part of one’s ability to regulate oneself via goals (Lindenberg 2008; Dohmen and Falk 2011). Among these influences, probably the most prominent is having (and making oneself vulnerable to the influence of) significant others that represent normative claims. For this reason, I will dedicate a longer paragraph to that form of support.

The important role of significant others. Not everybody is equally important for one’s self-regulatory abilities. In the course of their development, people acquire significant others (such as mother, partner, close friends, religious leaders) whose opinions and standards weigh heavily and who can be called upon especially to strengthen the normative goal-frame. Of course, some of the most important significant others are the direct socializers in early childhood, and especially the mother. They represent norms and standards, and in interaction with them the ability to stabilize the normative goal-frame is developed (see Gralinski and Kopp 1993; Kochanska 2002). However, the significant others are not just important in the formative years (and for the internalization of substantive norms), but also for the inner dialogue that keeps going on. They remain in the person as a private audience to which the self turns and virtually interacts
(see Baldwin and Holmes 1987). Thus a significant other does not even have to be physically present to influence one’s behavior. Experimental research shows that when certain significant others have been made salient in somebody’s mind, their norms will influence behavior quite strongly (see Baldwin, Carrell, and Lopez 1990; Baldwin and Holmes 1987; Fitzsimons and Bargh 2003; and Shah 2003a,b). Significant others also influence the readiness to follow social norms in general, not just specific norms. Thus having significant others on one’s mind helps stabilize the normative goal-frame.

Shah (2003a) has shown that thinking of significant others can influence a person’s goals, in the sense that goals attributed to the significant other activate the same goals in the attached person, and also in the sense that goals the significant other is thought to disapprove of are inhibited. For example, Shah could show that individuals primed with father-related words were more committed to goals the father valued and also performed better at reaching those goals, the more so, the closer they felt to the father. Conversely, the closer they felt to the father, the more goals he disvalued were inhibited for them. Shah (2003b) also showed that the effect of significant others on one’s behavior does not run only via goal activation or inhibition, but also via self-appraisal and the emotional response to goal achievement or achievement failure. For example, if your mother thinks you can achieve a goal, then thinking of your mother will positively affect the appraisal of your own ability to achieve it. The converse holds for negative expectations. In addition, the more important the mother finds the goal, the more satisfied you will be by achieving it, and the more dissatisfied by a failure to achieve it (see also Baldwin, Carrel and Lopez 1990). Self-regulation thus involves a “psychological presence,” an inner meeting and dialogue of the self with significant others. Persons who have significant others who believe in their abilities and who find their goals important have a definite self-regulatory advantage in pursuing those goals. Yet having or not having significant others for self-regulation is often subject to self-regulation itself. For example, it has been found that people motivate themselves to achieve a valued goal by seeking out significant others that are successful at achieving the goal as role models (Lockwood, Jordan, and Kuna 2002).

When people cannot attach to significant others (especially those that represent important social norms), the normative goal-frame cannot easily be strengthened by alternative means to the same degree. As a result, self-regulatory capacity is likely to be lower and depletion effects higher. For example, Gestsdottir and Lerner (2007) show how important self-regulation is for a positive development of youths. Yet children may have systematic disadvantages with regard to self-regulation. An important case in point is attachment problems in early childhood resulting from aggressive parenting. Children with attachment problems will grow up with a deficit in significant others and thus a deficit in self-regulation (see Calkins 2004). However, this problem is not randomly distributed but occurs more in low Socioeconomic Status (SES) families (see Pinderhughes et al. 2000; Raikes and Thompson 2005; Shaw et al. 2001). Thus children from low SES backgrounds run the risk of lower self-regulation capacity, as well as later in life, and bear the risk of lower well-being (see also Hart, Atkins, and Matsuba 2008). Note that self-regulatory ability has an impact on problem behavior and performance quite different from general
intelligence, so that it is not simply a matter of a negative correlation between SES and intelligence (see Ayduk et al. 2007; Blair and Razza 2007; Moffitt et al. 2011). Lack of self-regulatory ability is also likely to affect status (see Bear and Rys 1994; Moffitt et al. 2011), so that, as already mentioned above, we get a vicious circle that may trap people in a low-status position. A similar effect can be expected for the children of immigrants. They are better integrated into the new culture than the parents, and are often confused about who their significant others are. This negatively affects their self-regulatory abilities, which makes it more difficult to break out of low-status positions.

An important consequence of these phenomena is that paying attention to significant others will often work better than punishments or rewards. For example, Sampson, Laub, and Wimer (2006) show that being married (that is, having a close significant other who cares) has a considerable effect on reducing criminal activity. By contrast, it is by now well known that the interventions directed individually at problem youths (such as incarceration, probation, shocking youth by the experience of brief incarceration or by having criminals tell them about the horrors of prison ["scared straight"], court-ordered school attendance) don’t work very well (see Kazdin and Weisz 1998; Lipsey and Wilson 1998; Sherman et al. 1997). Where the traditional rational choice models would assume that negative incentives (such as incarceration or shock experiences) steer behavior away from trouble, the social rationality approach, with a central place for self-regulation, would look first of all at the functioning of significant others for self-regulation capacity. Incarceration is likely to increase self-regulation problems because it reinforces the importance of delinquent peers and decreases the importance of adults in authority as significant others (see Huey et al. 2000). What is likely to help is to improve the positive role parents and teachers can play as significant others by focusing intervention on teacher and family functioning (Kazdin and Weisz 1998) and to coordinate the role teachers and parents can play as significant others (Eddy, Reid, and Fetrow 2000). This also involves communicating clear rules and expectations that emanate from the significant others (see Sherman et al. 1997: ch. 5). Conversely, changing one’s ways in order to become a better significant other for somebody else requires that, for example, a parent improve his or her own self-regulation by accepting therapists as significant others (Kazdin and Whitley 2006).

Self-regulation is a socially embedded process and thus needs continuous social support. Thus it also helps to make the youths more susceptible to the influence of relevant significant others. For example, training in cognitive problem-solving skills (prominently including perceiving how others feel and anticipating the effects of one’s behavior on others) seems to be quite effective in reducing antisocial behavior in (pre)adolescents (see Kazdin and Weisz 1998). Note that this reasoning is not just based on the workings of social influence or “social integration” (as social control theory would have it; see Hirschi 1969). For example, the attempt to change youth violence by redirecting high-risk youth through enriching their recreational activities in the peer group context (for example, by midnight basketball games) did not work (Elliot and Tolan 1999; Patterson et al. 1998). Such interventions do not establish links to significant others who strengthen the normative goal-frame.
Meaningful need states. A more “radical” way to increase goal-related self-regulation is to change not just the environment but also the goal at the same time. When self-regulation is lacking, people can experience extreme frustration at not doing what they set out to do, or not knowing what to do, or feeling bereft of meaningful activity. By contrast, being eager to achieve a meaningful goal, knowing what steps to take, feeling efficacious to take those steps; jointly, these things give one a feeling of being in control, being part of something meaningful, and of being motivated to go forward. This is what may be called a “meaningful need state,” and it can be more or less actively sought as a way to increase the balance of the goal-frames. Often, but not always, it is also linked to significant others. The advantage of such a state is that when it is active, people feel that they have a purpose, they feel energized to pursue it, have feelings of deprivation if they cannot pursue it, are frustrated if they fail at pursuing it, and experience satisfaction by making progress in their pursuit. In short, meaningful need states provide both self-regulatory capacity (direction, planfulness, link to norms) as well as sources of satisfaction. When such a state is active, a normative goal-frame is strongly supported by a hedonic goal from the background, or (less advantageous for self-regulation, as we will see later), a hedonic goal-frame is strongly supported by a normative goal in the background. Bunderson and Thompson (2009) provide a graphic example of this combination: zookeepers, and how they experience both a deep moral duty to follow this “calling” and a passion for their calling. The concept of intrinsic motivation (as traditionally employed) is not suitable to cover meaningful need states because it lacks the normative element necessary for the meaningfulness besides enjoyment (see Lindenberg 2001b).

It is probably difficult to overestimate the importance of the search for meaningful need states in society for both people’s attempts at increasing their self-regulatory capacity and also their sense of purposefulness and well-being. Very likely it is ubiquitous and much in need to be studied.

How do people get into such a state? The basis of its working is the possibility that goals can acquire a needlelike urgency. The assumption here is that when goals are considered meaningful and they are stated in such a way that they have a clear end state and clear steps that lead toward the end state, they can create an especially strong goal-gradient effect. The closer to the end state, the stronger the motivation to reach the end state (Kivetz, Urminsky, and Zhang 2006). Such goals open, as it were, a space for purposeful and worthy pursuit with the built-in driver of structured approximation toward a good end. A situation could trigger such a need state, but it is more likely that people, in search for sources of purpose and self-regulatory capacity, find themselves gradually in a situation in which they discover, welcome, and embrace the tug of a meaningful need state.

Projects can be organized to grip people in such a way. For example, many people in the Netherlands work overtime. A survey (OSA 2003) reports that in the Netherlands, 25 percent of the Dutch labor force work paid overtime, and 27 percent put in unpaid overtime. Why do so many people put in unpaid overtime? It cannot be the lumpiness of labor supply in which the job with the exact preferred number of hours is unavailable. In the Netherlands a new law, the Working Hours Adjustment Act (Wet Aanpassing Arbeidsduur) was
introduced in 2000 that gives employees the right to reduce or increase their contractual working hours. Generally, organizations comply with this law. We have looked into this question and found that it is also not the improved chances of promotion that drive unpaid overtime. Rather, our research shows that it is the project organization that does it (van Echtelt, Glebbeek, and Lindenberg 2006). The most likely circumstance leading to the decision to work overtime is that there are clear steps that have to be taken toward the completion of a project and that these steps do not get quite finished during regular time. Something presumably worthy has to be brought to a good end, and the steps in between may be such that they act as their own motivators. In other words, the unpaid overtime is very likely the result of the workings of meaningful need states. Even though organizations make strategic use of this effect (van Echtelt, Glebbeek, Lewis, and Lindenberg 2009), it can work only because people let themselves be swept into the self-motivating and self-constraining stream of a project because they profit from it in terms of self-regulatory capacity and satisfaction.

Hobbies are another common source of meaningful need states. Hobbies are often quite socially regulated and organized in such a way that they provide purpose and at the same time embedded and often concatenated end states. For example, stamp collectors create worthiness of their pursuit by the networks and communities that exchange information and provide standards of competence and value, as well as opportunities to demonstrate (more or less competitively) expertise, stamina, and cunning with communal appreciation. In addition, the stamp collector community and the postal authorities that partially cater to this community create embedded meaningful end states by defining sets of stamps that belong together. There is in principle no end to this pursuit, because by new groupings, the end states are inexhaustible and, at least in part, also concatenated by sequences. Another example is bird watching, which is also socially organized and structured in terms of projects each one of which can be brought to a good end, only to be followed by another. Socially embedded hobbies are likely to be linked to particular significant others who represent the worthiness and normative standards for this form of improving one’s self-regulatory capacity. This means that both forms of support for self-regulation are mostly interlinked.

The downside of meaningful need states. The positive side of the meaningful need states can also be their downside: they have a hold on people, especially if the significant others are lacking or not demanding with regard to social norms. Since the meaningful need states are actually activated goals, they tend to inhibit possibly competing goals (in case of overtime work, it is goals such as family obligations and leisure time that get sidelined; see Caruso et al. 2004; Dembe et al. 2005; and Dahlgren 2006). There can even be a reversal of hedonic and normative goals, such that the hedonic goals are in the foreground. For example, this might happen with computer games that are structured to create seemingly worthy, embedded, and concatenated end states. However, the emphasis is on embedded end states with relatively low standards for meaningfulness, which allows a preponderance of the hedonic goal. The significant others may be nonexisting or linked only to normative standards that are internal to the game structure and thus do not help with the self-regulation of social contacts. In
terms of self-regulatory capacity, such versions of meaningful need states may thus be counterproductive.

**Self-Related Processes of Self-Regulation**

The very basis of top-down forms of self-regulation is that individuals are able and motivated to distinguish between self and nonself, to be self-reflective (that is, they can become an object of their own attention), and to be agentic—that is to say, feel themselves as the cause of changes in the world and changes in their own inner states. This process requires elaborate cognitive and motivational processing (Christoff et al. 2011; Jeannerod and Anquetil 2008; Lieberman 2007). The self has occupied a central place in both psychological and sociological theorizing, resulting in many different theories of the self; this is not the place to review that literature. However, there is considerable consensus about the fact that the development of the self is itself a social process, and so is the maintenance of the self. In fact, people are treated and evaluated as selves by others, and they evaluate themselves as selves, compare themselves with others, try to maintain a positive view of themselves, have ideas about their ideal selves, and strive to reduce the discrepancy between their present and their ideal selves. In all this, people are able to bridge the gap between self and social nonself with a theory of mind, perspective taking, and affective empathy—that is, with processes in which they experience others also as selves (Malle and Hodges 2005). Social interactions and evaluative processes (both of which are also relevant for satisfying fundamental needs) thus heavily lean on “selves” and their maintenance (see also Erikson 1964; Vygotsky 1978).

From the foregoing, it is clear that the integration and maintenance of the self and the capacity to bridge the self and (social) nonself are important. But what exactly is so special about the self? What gives it such an important place? The main reason for this important place is the fact that individuals must be able to have internal representations of themselves and their own mental states (Frith and Frith 1999; Goldberg 2009; Greenwald and Breckler 1985). This is important for self-monitoring, for plans, and for reacting to one’s own prepotent impulses and the feedback from others. For adaptive behavior, individuals must be able to keep track of themselves, demand things of themselves, and respond to their own representations. Importantly, this response is also evaluative, creating more or less self-esteem. Individuals must also be able to project themselves into the future, make plans, and pursue interrelated goals. The quality of their decision-making depends to a large extent also on the way they feel about things. Inconsistencies or ambiguities in feelings will in many cases also negatively affect the quality of decision-making (see Bechara and Damasio 2005). In addition, there are constraints resulting from reaction to others. What feedback should an individual react to, and how? How to avoid impressions of arbitrariness or lack of direction? All these points are negatively affected when the self-nonself distinction is in flux, or when the self is experienced as fragmented or uncertain or unworthy.

There is also another reason for the importance of the self. It is likely that perspective taking and empathy (putting oneself into the shoes of the other, both cognitively and affectively) depends on the ability to simulate what
might go on in the other, which, in turn, requires a sense of self (Lieberman 2007; Uddin et al. 2007), all the more since the observer might have to imagine the situation of the other without having experienced it (Eisenberg and Sulik 2012).

Schematically, the process of self-formation can be described as follows (see also Markus and Cross 1990). The child learns early on to demand things from the social environment. It is also genetically equipped with the ability to distinguish social from nonsocial objects and pays special attention to social objects (Wynn 2007). Later, it also learns to put itself into the shoes of significant others in the social environment, which presupposes some cognitive separation of self and others and the understanding of the other as intentional being (Malle and Hodges 2005). It also requires the ability to see itself through the eyes of others (Mead 1934). The child thereby also learns that things are demanded of it. The child develops self-representations and experiences itself as causal and agentic (Jeannerod 2003). It also develops shared representations with others (for example, joint attention; Tomasello and Carpenter 2007). In a further step, the ability to put oneself into the shoes of others is applied to oneself, as the child also learns to put itself into the shoes of its own future self, and also into the shoes of itself as member of a collective (dyad or group). This is also the basis for the overarching gain goal and normative goal, described earlier. Thus the child learns to be represented to itself in a need-related, resource-related, or collective guise. The ability to demand and respond to demands is present in these different selves. In this sense, the person is a social system. As the child begins to talk, it eventually also learns to talk to itself from different perspectives and to demand and suggest things to itself, in private speech (aloud but directed to itself) and later also in inner speech (Berk 1992), including nonverbal inner communication such as conjuring up images and auditions (Barkley 2004). For example, the child learns to demand from itself to block aggressive emotions from arising, and has the capacity to influence its own electrochemical processes in the brain (see Banks et al. 2007). In this development, the child will evaluate various aspects of itself (or of its various selves), and as the child grows up there is increasing internal and external pressure to integrate these aspects in a more or less harmonious way (Erikson 1964; Nowak et al. 2000).

**Lower-order self-regulatory processes concerning the self**

There are at least two important lower-order self-regulatory processes that kick in when the self feels either invulnerable or threatened. With regard to the feeling of invulnerability, the self-regulatory tendency is to lower the degree to which one is socially influenced. In terms of evolution, this makes sense. The less dependent one is on others, the more adaptive it is not to use scarce resources on them. Yet high-order self-regulatory processes are needed to contextualize this tendency because it may lead to the negative consequences in the long run (say, because ignoring people may turn them against you and thus increase interdependency). This possible dysfunctional side of the lower-order reaction to the feeling of invulnerability shows up in research on power. For example, powerful people tend to be worse at perspective-taking (Galinsky et al. 2006) and tend to be overconfident in their decision-making (Fast et al.
2012). Organizations can greatly suffer from these tendencies (Bunderson and Reagans 2011).

Probably the two most important lower-order self-regulatory processes concerning threats to the self are (a) self-defense, in which a particular self-image is defended against (mostly external) threats; and (b) cognitive ego-enhancing biases.

Self-defense is a regulatory process that involves both cognitive and affective aspects. Cognitively, it is linked to closing one’s mind to threatening information, or denying evidence (for example, denying that smoking is dangerous if smoking is part of one’s self-image). Affectively, self-defense is linked to avoidance or approach tendencies, and both can be mediated by a sense of shame (de Hooge, Zeelenberg, and Breugelmans 2010). There can be attempts to make amends, but, as people react defensively to a threatened self-image, there can also be aggression and violence (Baumeister, Smart, and Boden 1996). For example, people may aggressively blame others in order to protect an unblemished self-image against threatening accusations. Negative feedback from others (such as disapproval) can be experienced as being directed against a particular kind of behavior (in which case it lowers satisfaction of the need for behavioral confirmation and may lead to repair behavior), or it may be experienced as being directed at the person, in which case it threatens the self and may lead to aggressive self-defense (see, for example, Bagozzi, Verbeke, and Gavino 2003). If the approach reaction is not feasible or too risky, then shame may lead to denial, withdrawal, or escape.

Ego-enhancing biases consist of people’s tendency to see things such that it enhances their self-image, especially after it has been threatened (Dunning, Leuenberger, and Sherman 1995). Many such biases have been identified (Dunning 2002). One example is the better than average effect, which makes people assume that, regarding traits that are important to their self-image, they are better than the average other. This kind of assessment is not just for the sake of impressing others. It is a truly lower-order self-regulatory mechanism such that people believe their self-enhancing assessment (Williams and Gilovich 2007). In-group favoritism is another form of self-enhancement (Gramzow and Gaertner 2005). I will not list all the self-regulatory strategies to enhance one’s ego, especially after the ego is being threatened. However, all these forms share the basic mechanism of defending a positive self-image. Even though people with a negative self-image also tend to enhance their ego, they are also prone to seek validation of their low estimation of their self and thus have mixed self-regulatory ego-defensive strategies (Sherman and Cohen 2006).

**Higher-order Self-regulatory Processes Concerning the Self**

For sociology, the higher-order self-regulatory processes concerning the self are even more important, because they are crucial for battling the negative side of the lower-order self-regulation and for a smoother running of social interaction in virtually all contexts. In the literature we find many different theories about high-order self-regulation concerning the self; however, the three sociologically most important groups of self-regulatory processes are likely to be the following:
a. The search for clarity of core aspects of the self,
b. The search for harmony among aspects of the self,
c. The search for positivity concerning the self.

I will briefly discuss them in order.

Clarity. Even though there are many partial selves, there are aspects that are likely to belong to what Markus (1977) called “self-schema.” This core contains aspects that one considers particularly important about oneself. No matter what goal-frame is salient, persons will always be particularly sensitive to information about themselves. Aspects that belong to the self-schema are more accessible and thus come to mind more easily. They are also better remembered and better linked to other parts of one’s knowledge structure. For example, if somebody talks about your qualities as a father, it may make you particularly vigilant about what is said because your being a good father belongs to your self-schema. A poorly defined self-schema (that is, confusion about who you are) creates less focused and consistent guides to attention and retention (Campbell et al. 1996) and thus weaker tendencies to override lower-order self-regulatory processes. It also lowers self-esteem and well-being (Sheldon et al. 1997; Stinson, Wood, and Doxey 2008).

For the establishment and maintenance of clarity of core aspects of the self, the search for and availability of significant others (including role models) have been identified as particularly important (Bosma and Kunnen 2001; DuBois et al. 2002; Meeus, Oosterwegel, and Vollebergh 2002). People search for support from significant others and look at role models in order to find out what may be the core aspects of their personal identity (Markus and Cross 1990). This holds for all phases of life, even though the significant others and role models may change. For example, for adolescents it may be parents, peers, teachers, or celebrities; for adults it may be partners, supervisors, colleagues, or friends; and for elderly people it may be partners, friends, or spiritual leaders (Carstensen 2006). Such search is intensified in times of negative life events (Thoits 1991). In short, the degree of identity clarity heavily depends on having supporting significant others and role models, especially when doubt about one’s identity is most salient (as in times of negative life events). People who have reduced access to such significant others are likely to have more problems with maintaining identity clarity.

Another factor that has been identified as playing an important role is cultural clarity. This concept refers to clarity about one’s cultural group (whatever that group may be). Clarity in this area has a positive impact on the clarity of one’s personal self (Usborne and Taylor 2010). Thus cultural confusion is likely to lead to confusion about one’s personal identity. Self-regulation is thus likely to focus also on cultural clarity, for example by culture-relevant selectivity in interaction and negative out-group attributions.

Harmony. Even with clear core aspects of the self, there are many partial selves (that also overlap with important roles), and they may be more or less in conflict with one another or in harmony. For example, one’s self as a mother and wife may be in conflict or harmonious, as is one’s present self in relation to one’s possible self (Markus and Nurius, 1986). Conflict may create difficulties
in making plans, in fulfilling obligations, in emotion regulation, and in self-esteem. Harmony refers to the compatible combinations (not necessarily to the integration) of partial selves. A higher degree of harmony has been associated with better resource use and higher well-being (Brook, Garcia, and Fleming 2008). Self-regulation with regard to harmony focuses on compatibility in terms of activities, circles of interaction, plans, and so forth. For example, creating a career is an important process for young adults, and thus it is important which aspects they can pursue without conflict (see, for example, Syed 2010). Part of their career planning will be dedicated to creating harmony among their partial selves, both in terms of identity–relevant roles and traits. Ideologies, narratives, and “self-portraits” are ways to help create and maintain harmony, and the higher the need for harmony the more likely that people will make use of these tools for self-regulation (see Habermas and Bluck 2000; Harter and Monsour 1992). Again, significant others are an important potential source of harmony (Chen, Boucher, and Tapias 2006).

Positivity. Even though self-regulation focuses on clarity and harmony, this does not mean that an individual thereby automatically has a positive view of the own core self. Yet, since the core self is the basis of one’s agency, one’s plans, dreams, and hopes, one would like to be able to have a high regard for it (Jones 1973; Tesser 1988). This regard is not simply given. In comparison to the lower-order self-defensive strategies, these higher-order strategies do not work via biased cognitions and aggressive outbursts. They involve strengthening a core sense of self in an agentic rather than reactive way, even when threats to the self are involved (Leary 2007). The strategies for this purpose include self-categorization into groups that can add positivity to the sense of self (Turner 1985). Then there is social comparison, which can be used to enhance one’s sense of self, both downward (Gibbons et al. 2002) and upward social comparison, depending on what works best for the positive sense of self. Two self-regulatory strategies are particularly important for overpowering the lower-level self-defensive strategies (and many of their negative consequences) and will therefore be discussed with a bit more detail. It is self-affirmation and self-presentation.

When people reflect on what their personal values are and on how they lived up to those values, they strengthen their core self by affirming it (Steele 1988). They thereby reduce the often dysfunctional lower-level self-regulatory processes of self-defense and the concomitant closing of the mind in the process. Self-defensive strategies imply, for example, not changing one’s beliefs in the face of contrary evidence, not heeding negative health information, misperceiving one’s capacities, and jeopardizing one’s relationships with others (Sherman and Cohen 2006). Ironically, self-affirmation does not seem to work if the situational cues appeal to one’s being rational and pragmatic. Nor will the appeal to rationality and pragmatism prevent closing of the mind. Thus, for example in negotiations, appeals to the parties to be rational and pragmatic can be highly counterproductive (see Cohen et al. 2007). The explanation for this ironic result may be that making one’s rational identity salient implies lessening the focus on values and identity, thereby suppressing effects of affirming values. Threats to identity are then not buffered and therefore might trigger self-defensive strategies.
Self-regulation can stabilize the self-evaluation by influencing the evaluative feedback from others. Goffman has worked out this aspect of self-regulation in terms of what he called impression management (see Goffman 1959; Schlenker 2003). The presentation covers aspects that people deem important to their identity, possibly including physical appearance (dress, hair, posture) and facial composure, but also proper attention, orientation, and conversational focus, and especially clear signs of being a purposeful person. Take an example of appearing purposeful. Imagine that a person walks in the street and realizes that he has forgotten his bag in a store a block behind him. It is unlikely that he will just turn around and walk in the opposite direction, looking as if he had no purpose walking in either direction. Rather, his expressions and gestures will indicate that he has forgotten something before he turns back (for instance, he may briefly put his hand to his forehead, visibly shake his head, stop for a moment, and then reverse his direction). Other people expect to see purposefulness, and they react negatively when a person appears to lack that quality (see Gigerenzer 2002).

The idea of impression management has long roots in sociology (see Cooley 1922), but in the past the literature focused less on social factors influencing self-related self-regulation. For example, social networks can be far more than sources of information or social support in times of trouble; they can be important stabilizers of one’s identity. Lacking social networks or having the wrong social networks can thus also impair one’s self-regulatory abilities via its impact on the self, not just via the impact on goal-contagion.

Conclusions

When human rationality is seen as having evolved together with the problems that needed solving for adaptive behavior in changing environments, it basically comes down to a social kind of rationality that is linked to self-regulation adapted to the complex social interdependencies of human reproduction, socialization, and collective efforts. Viewed in this way, self-regulation, not consistency, should be the core meaning of human rationality. The human brain developed as a sophisticated social brain to be able to handle self-regulatory behavior in such contexts and to overrule, if need be, more basic (less context-dependent) forms of self-regulation. This led to three different evolved sets of self-regulatory processes that are interconnected but can be usefully distinguished and looked at by themselves: need-related, goal-related, and self-related self-regulation. These capacitates differ by person, but also by circumstance, and by lifelong development. This paper has discussed all three separately, but it is important not to forget their interrelation. For example, deficits in the satisfaction of fundamental needs lead to pathological behavior that negatively affects the other sets of self-regulatory processes. As we have seen, an insecure sense of self, in turn, negatively affects the balancing of overarching goals and thus leads to lower levels of self-discipline. Lower levels of self-discipline with regard to normative behavior lower in turn the satisfaction of fundamental social needs because these needs are best fulfilled obliquely, as a side effect of normative behavior (Lindenberg 1989; Sheldon 2004). When fundamental needs are being satisfied, the sense of self is strengthened (Luyckx et al. 2009). In addition to these interrelations, there are social events that disturb all three sets of self-regulation.
at the same time. Lack or loss of significant others is such a factor. Another prominent example of this is social exclusion. A modest negative feedback is useful as a corrective for performance, especially if it supports one’s autonomy (Buckley, Winkel, and Leary 2004; Mouratidis, Lens, and Vansteenkiste 2010), but a feeling of being rejected by or excluded from the group seemingly leads to a decrease in the satisfaction of social needs, in the secure sense of self (provoking self-defensive behavior), and in self-discipline (Twenge, Catanese, and Baumeister 2003). It is important to realize that all three sets of self-regulatory processes heavily depend on social supports, be it in the form of informal relationships, organizational contexts or of formal institutions.

Because these interrelated processes of self-regulation are rather complex, one may want to reduce the complexity by simplifying. This is perfectly legitimate, and one may concentrate on only one of the three sets (because they are interrelated), or focus only on higher-order processes because they often trump the lower-order processes. But, as sociologists, it is not advisable to simplify by focusing on situations in which self-regulation has been made trivial, in the sense that there are presumably no needs involved and no goal conflicts, there are presumably no threats to the self and no emotional reactions to success or failure. Standard models of rational choice are rudimentary theories of self-regulation in the sense that they assume agency and top-down regulation of behavior. However, in these models virtually all aspects of self-regulation are made trivial: no attention to needs or goal conflicts (thus an assumed chronic gain goal-frame), no changes in the level of rationality due to lower-order self-regulation, no emotional responses to success or failure (but instead undisturbable Bayesian updating). Such a rudimentary theory may be useful as ideal type (see Gächter, this volume), as a benchmark against which the actual complexity of self-regulation is being brought into profile, but by and large, this view of a restricted usefulness in terms of self-regulation has not yet received wide acceptance. Of course one has to simplify, but there is also a principle of sufficient complexity (Lindenberg 2001a). Many social situations and institutions are either a problem for or a solution to (or both) self-regulatory problems. In order to understand these situations and institutions, we would do well to make self-regulatory processes and their social embedding a core business in sociology.

Notes

1. See, for example, Lindenberg 1996; Ormel et al. 1999; Steverink, Lindenberg, and Ormel 1998; Nieboer and Lindenberg 2002; Nieboer, Lindenberg, Boomsma, and van Bruggen 2005; Steverink and Lindenberg 2006.

2. When the group concerned consists of just a close relationship, then behavioral confirmation and affection often blur, and so does the way they are talked about in the literature (see, for example, Baumeister and Leary 1995: 505; and Murray et al. 2003: 63).

3. For reasons of space, I will concentrate mainly on the supports of the normative goal-frame, even though equal space could be allotted to the strengthening of the gain goal-frame. With regard to the latter there is, however, less need of elaboration, as the work of Max Weber and contributions such as Williamson’s exposition (1985) of the institutional and organizational supports of capitalism provide important insights into the conditions that potentially strengthen the gain goal-frame.
References


Need Satisfaction Also Affects Well-Being.” *Journal of Personality and Social Psychology* 91: 331–41.


