CHAPTER 11

Positive Emotions, Social Cognition and Intertemporal Choice

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The impact of positive emotions on social cognition has received increasing attention over the past decade. It is quite clear that the experience of such emotions influences the way we process information about the social environment. Pride, for example, has been shown automatically to cue evaluations of higher status and dominance (Tracy, Shariff, Zhao, & Heinrich, 2013); similarly, happiness has been found to impact moral decision making (Valdesolo & DeSteno, 2006) and to increase the use of stereotypical information (Bodenhausen, Kramer, & Süsser, 1994). Other chapters in this volume address a variety of specific influences, as well as mechanisms by which discrete positive emotions shape thought and behavior. Here, we focus on a narrow aspect of social cognition that we think unifies many positive emotions in terms of function, and has the potential to bridge existing theories of social cognition, person perception, and morality.

Specifically, we are interested in the influence of positive emotions on "intertemporal choice," by which we mean decisions that have different consequences as time unfolds. We propose that positive emotions function in large part to motivate adaptive intertemporal choice, delaying immediate rewards for the possibility of long-term rewards. They do this by enhancing an individual's "social value" (defined as the value others in a social group ascribe to an individual as an interaction partner) through the motivation of behaviors and decisions that cultivate perceptions of *warmth* and *competence*—two basic dimensions of person perception (Fiske, Cuddy, & Glick, 2007). If one adopts a definition of moral systems as those characterized by cooperative and flourishing social life (cf. Haidt & Kesebir, 2010), then this perspective on positive emotions has direct implications for theories of morality and, specifically, moral emotions.

Intertemporal Choice

Humans are constantly faced with important *intertemporal choices*. Whether these involve deciding how much of a paycheck to contribute to a retirement fund, how often to visit the doctor, how to establish and maintain a healthy diet and exercise routine, or how to work through relationship prob-

lems, we are presented with decisions that on the one hand offer immediate gains, but on the other hold the potential for greater future gains. Researchers across several disciplines agree that effectively balancing these competing gains has important adaptive consequences (DeSteno, 2009; Frank, 1988; Laibson, 1997; Loewenstein, Read, & Baumeister, 2003).

How do we solve these difficult dilemmas? Rational choice models tend to locate the solution in individuals' ability to weigh consciously the corresponding options, and to make a decision that maximizes benefits. We calculate, for example, the utility we would gain from contributing a default saving rate of 3% of our salary to our 401(k) against other options, such as contributing the maximum amount that will be matched by our employer (say, 50 cents on the dollar for up to 6% of salary), or just the maximum amount allowable. Once this cost–benefit analysis has been conducted, the output informs our choice.

However, decades of research have demonstrated that fundamental biases involved in these kinds of analyses prevent rational calculus. Most importantly, the literature on temporal discounting (Ainslie, 1975; Loewenstein & Thaler, 1989) has shown how estimates of value distort over time. The value of $3,000 received today does not feel the same as $3,000 to be received 40 years from now (all else being equal). Such a bias often leads people to prefer immediate gains relative to gains that unfold over time. Spending money now would be more enjoyable than saving for retirement. Hitting the snooze button feels a lot better than getting ready for work, and we have yet to come across a heart-healthy grapefruit that smells like bacon. Now is better than later. This is the case even when future gains are potentially greater than immediate gains. This can be problematic, since so many adaptive decision-making strategies require the ability to delay immediate gratification for the sake of long-term success.

What underlies this bias? Theorizing and empirical research in psychology, neuroscience, and behavioral economics have offered one answer: Short-term rewards are preferred because of the *intuitive* appeal of immediate gratification, and long-term rewards are discounted because their appeal is rooted in more abstract and *controlled* calculations (Laibson, 1997). Now *equals* emotion. Later *equals* reason. Neuroimaging studies have supported this dual-process model of decision making, wherein intuitive and controlled systems operate in tandem and compete to determine which option in intertemporal choice paradigms people prefer (McClure, Laibson, Loewenstein, & Cohen, 2004). People who manage to save for the long term, who can pass on dessert if they are trying to lose weight, and who can suffer through the slings and arrows of fights with partners for the sake of the relationship are stifling the influence of their emotions, which scream out to buy that new iPad, order a brownie sundae, and leave that guy after the first rocky patch. It is easy to see how this explanation is rooted in the rationalist tradition of decision making. People might not always make optimal intertemporal decisions, *but when they do* it is because they have been able to suppress or ignore their emotions. How, exactly, are people able to pull off such a feat?

If you have paid attention to popular coverage of psychological research over the past several years, you are likely familiar with this answer. You might even be tempted to conclude that in solving this riddle, psychologists have finally uncovered the secret of predicting professional success, life satisfaction, and morality: It's in aisle three of your local supermarket, between the chocolate chips and the all-purpose flour. Marshmallows. Indeed, if you have not yet invested in a bag of these alluring treats, and administered the now-famous marshmallow test to all the children in your life whose future you hold dear, then you are seriously jeopardizing their careers and relationships. The task could not be simpler. Present each child with the following intertemporal choice: one marshmallow now or two marshmallows later. Can they resist temptation? Can they exert *self-control* over their deep-seated mallow-lust and sacrifice short-term pleasure for a greater long-term gain?

This capacity to exert self-control or engage in regulatory processes has been shown to predict a wide range of positive life outcomes, including academic achievement and professional success (Ayduk et al., 2000; Eigsti et al., 2006; Mischel, Shoda, & Peake, 1988; Mischel, Shoda, & Rodriguez, 1989;

Shoda, Mischel, & Peake, 1990). Indeed, self-regulation is thought to be the primary way in which controlled systems tamp down the cravings of the immediate reward system (Berns, Laibson, & Loewenstein, 2007). In the standard account, self-control is a top-down process whereby areas of the brain involved in higher-order cognitive control moderate the influence of areas of the brain involved in emotional responding. The message from decision science over the past several decades has been that if people want to become less shortsighted and start making more adaptive intertemporal decisions, they should control their emotions.

The perspective that self-control processes help stifle intuitive systems and facilitate decisions in line with higher-order reasoning has been further supported by studies that demonstrate how emotional responses to various types of moral transgressions can lead to inconsistent moral decisions (Greene, Nystrom, Engell, Darley, & Cohen, 2004; Greene, Sommerville, Nystrom, Darley, & Cohen, 2001). The well-known "trolley dilemmas" are illustrative. Participants must decide whether they would be willing to take action that would involve inflicting a direct or indirect harm on an innocent individual in order to save the lives of five others. Typically, participants are willing to inflict indirect harm to make this tradeoff (not an emotionally evocative decision), but they are not willing to inflict a direct harm (an emotionally evocative decision). This has been taken as evidence of the way in which emotions disrupt the consistent application of moral principles. Furthermore, those who are able to make consistent moral decisions across these two dilemmas show increased activity in brain areas responsible for cognitive control (Greene et al., 2001, 2004). Again, controlling and regulating emotions allow for optimal decision making.

Indeed, the ability to control emotional responding successfully and make intertemporal tradeoffs has become inextricably linked with the topic of morality in other ways as well. Many of the emotionally evocative aspects of decisions have been defined as "selfish." We desire a personal pleasure (marshmallows, sex, money) and we need to control the urge to satisfy that desire in order to act in ways that take others' perspectives, wants, and desires into account. So self-control is not only the path to long-term success but also the path to morality. Emotion = now = selfishness. Reason = later = selflessness.

This perspective sits well within certain philosophical and religious traditions in which temperance and the ability to curb one's "animalistic" desires are next to godliness (Plato, 1949; Solomon, 1993). It does not fit so well within a growing body of research in affective science.

Emotion and Intertemporal Tradeoffs

We do not intend to argue against the importance of "self-control" (as defined in this body of work) in aiding adaptive intertemporal choice or predicting important life outcomes, and we admire the methodological elegance and predictive validity of paradigms such as the marshmallow test, as well as the utility of hypotheticals such as the trolley dilemmas. Indeed, we agree with the spirit of these lines of inquiry. Often, impulses geared toward immediate gains need to be controlled in order to act in ways that are socially acceptable, as well as conducive to our well-being. It is clear that there are decisions and stimuli in our current environments that our intuitions are ill-equipped to confront, and in these cases a healthy dose of self-control is desirable. Though a strong taste for sweets may have served our species well when calories were hard to come by, we are now better served by having the cognitive wherewithal to avoid gobbling down as many Twinkies as can fit in our grocery bags.

However, this emphasis on conscious control in models of intertemporal choice may hinge on the way decision scientists have constructed such choices. It may be that these paradigms reflect only a subset of the kinds of decisions in which humans face intertemporal tradeoffs, with important adaptive consequences. Consequently, they elicit only a subset of the kinds of emotional responses that guide decision making. As such, the emphasis these paradigms place on self-control as an index of the ability to successfully trade immediate gains for greater future gains, and the "emotion = now" conclusion that logically follows, may be an artifact of the methodology.

In decision science, the study of intertemporal choice is defined as the study of the relative value people place on payoffs that unfold at different points in time. Such theories posit that participants consciously weigh the short- and long-term value of possible actions on the way to making a choice. Studies that have investigated the role of emotions in intertemporal decisions have used choices that elicit particular types of emotional responses—such as desires for food, sex, and money—that may be uniquely focused on short-term gains. In order to draw conclusions about the relative import of emotion and conscious deliberation in promoting adaptive intertemporal outcomes, one must ask whether these choices are representative of the kinds of intertemporal dilemmas in which people typically find themselves. If they are representative, and if emotional states elicited across varied situations and by varied targets consistently motivate approach behavior toward immediate gains, it would be reasonable to conclude that regulation of emotions tends to promote long-term benefits. But do emotions always have this effect?

Such a conceptualization of the range and utility of emotional responses represents an oversimplification of the complexity of emotional states, and of their relationship to adaptive intertemporal choice. Emotions ≠ now, emotions = now *and* later. This is a fundamental error that threatens to take hold in the field of decision science. A more nuanced account reveals just how central emotions are to optimal navigation of intertemporal tradeoffs.

Before we describe the import of emotions in models of intertemporal choice, it is important to define what *we* mean by such choices. For our purposes, these choices simply hold consequences that differentially unfold over time. This is distinct from defining such choices as those that require an individual to consciously weigh two options at any given time. For example, we would define the decision of whether or not to help a friend in need as an "intertemporal choice," since it has both a potential short-term gain (to avoid incurring the cost of expending time and energy on helping) and a long-term gain (potential reciprocity, strengthening of social bond). If the adaptive value of the latter is greater than that of the former, processes that motivate helping would promote adaptive intertemporal choice (e.g., emotions that motivate immediate costly helping and have the consequence of ultimately strengthening a bond). In other definitions of intertemporal choice, individuals must consciously weigh the value of each consequence (e.g., spending time but strengthening a bond), then decide on a course of action. Processes that motivate the choice with the most adaptive value would promote adaptive intertemporal decisions (e.g., regulating the desire to avoid expending energy for the *expectation* of a stronger bond).

Adopting this definition, any demonstration that emotions consistently motivate behavior whose effect is to incur short-term costs and reap long-term benefits would support the role of emotion in promoting adaptive intertemporal choice. Advocates of the self-control perspective might suggest that this function is precisely what emotions are incapable of accomplishing, and that pursuit of long-term goals, including an appreciation of the adaptive importance of maintaining mutually beneficial social contacts, is the role of conscious reasoning. This is an empirical question. Is there support for the idea that distinct emotional states help accrue long-term adaptive benefits? In the coming sections we argue that emotions do this quite often, and that positive emotions play a uniquely important role in this process.

Emotions and Long-Term Social Benefits

The idea that emotions have evolved to be responsive to long-term concerns is not new. Adam Smith (1790/1976) suggested that the "moral sentiments" are essential in the formation of stable exchange relationships, which bring payoffs to the self over time. Trivers's (1971) original formulation of the processes underlying the emergence of reciprocal altruism theorized that emotions are the mediators of cooperative behavior. More recently, Frank (1988) has argued that emotions serve as commitment devices. An important part of building relationships is overcoming the worry that one will expend time and resources building a relationship,

only to receive little or nothing in return. For instance, when deciding whether to enter into a social exchange or economic partnership, one must determine how likely the other person is to uphold his or her end of the bargain. Frank argues that emotions motivate individuals to engage in behaviors that commit them to incur short-term costs for the possibilities of the long-term benefits associated with mutually beneficial relationships.

All of these theories provide conceptual models for the plausibility of emotion-guided decisions that forego short-term gains and accrue long-term gains. The crux of these ideas are alive most notably in modern-day theories of functionalism (Keltner, Haidt, & Shiota, 2006), which argue that emotional states have evolved, at least in part, because they increase the probability and efficiency of adaptive responding (Barrett, Mesquita, Ochsner, & Gross, 2007; Keltner & Haidt, 1999).

Much of this past work has focused on the adaptive function of emotional states that respond to immediate concerns in the physical world. Disgust protects against exposure to, and ingestion of, potential contaminants. Fear motivates withdrawal from threats to physical safety. Anger helps remove obstacles to goal attainment. But adaptive decisions entail responding appropriately not only to the physical environment but also the social environment. The unique challenges presented from interacting with other humans have exerted strong selection pressure on the structure and function of emotional states.

Of primary importance is the ability to establish and maintain strong social networks that allow individuals to capitalize on the non-zero-sum logic of reciprocal exchange, as well as the protection and safety that group living affords. Indeed, these two long-term benefits are typically offered as rationales for the deep-seated desire to establish and maintain relationships with others (Baumeister & Leary, 1995; Campbell, 1983), as well as the serious negative consequences that accompany the lack of meaningful social connections. (Cacioppo, Hawkley, & Berntson, 2003; Williams, Case, & Govan, 2003). Emotions that motivate behavior ensuring long-term safety through these means are "functional" in the same way as emotional states that motivate behavior geared toward immediate safety.

Given this, the question of how to embed oneself within a social network becomes imperative. How does one become a valued and important member of a community? What are the characteristics necessary to be considered a desirable interaction partner? Successfully adapting to the social environment requires developing such characteristics. A compelling, and growing, body of literature in person perception and social cognition suggests a simple answer to this question. Social value, and the adaptive benefits that accompany such status, can be secured through demonstrating *warmth* and *competence*.

Warmth and Competence as Social Value

Judgments of warmth and competence underlie our perceptions of others, driving our emotional and behavioral responses (Fiske et al., 2007). These dimensions reflect categories of sociality that are both basic and adaptive: the need to anticipate actors' intentions toward oneself (warmth: morality, trustworthiness, friendliness, kindness), and the need to anticipate actors' ability to act on their intentions (competence: efficacy, skill, creativity, competence, intelligence).

These have been identified as basic dimensions of person perception throughout much of the literature in social cognition, though they have taken on different labels depending on the particular theory. For example, Rosenberg, Nelson, and Vivekananthan (1968) instructed participants to sort into categories 64 trait words that were likely to be found in another person. These participants generated two orthogonal dimensions of person perception: *intellectual good–bad* (defined by traits such as determined, industrious, skillful, intelligent), and *social good–bad* (defined by traits such as warm, honest, helpful, sincere)—two dimensions that are strikingly similar to *warmth* and *competence*. Recent research in face perception has also demonstrated the ease and speed with which participants judge *trustworthiness* and *competence* from exposure to faces (Todorov, Pakrashi, & Oosterhof, 2009; Willis & Todorov, 2006). Again, these two

dimensions overlap significantly, if not completely, with warmth and competence.

While warmth seems to be valued more than competence, communicating both warmth and competence elicits primarily admiration from others (Cuddy, Fiske, & Glick, 2008). In other words, the balance between these two dimensions of the self optimizes social value. Warmth without competence elicits pity; competence without warmth elicits envy; and contempt and disgust are felt for those who demonstrate neither (Cuddy et al., 2008). If cultivating these characteristics is the key to maintaining social value, and if social value predicts long-term well-being, then a functionalist account of emotions would predict that emotional states guide behavior and decisions in ways that shape these characteristics. Indeed, we believe that positive emotions motivate behaviors and decisions that cultivate and communicate a balance between warmth and competence.

Although, as we mentioned in the outset of this chapter, much attention in social cognition has been paid to the way that positive emotions influence information processing, less attention has been paid to the way in which the experience of positive emotions shapes the way others process information about the self. This may be a crucial component of their adaptive value.

Cultivating Warmth and Competence through Positive Emotions

While many negatively valenced emotions (anger, fear, disgust) seem geared toward removing or withdrawing the person from immediate threats to well-being, positive emotions are thought to motivate the development of "resources" whose payoffs to the self will unfold over time (Frederickson, 2001; Frederickson & Branigan, 2005). Specifically, positive emotions help people to develop four kinds of resources: social (establishing and solidifying bonds), physical (developing coordination and health), intellectual (learning and developing problem-solving skills), and psychological (cultivating resilience and goal-orientation). "Social" resources as defined here seem to map closely onto the dimension of warmth, while physical, intellectual, and psychological resources map more directly onto competence.

We believe that all of the long-term positive outcomes described by these theories ultimately contribute to an individual's social value through the cultivation of characteristics related to warmth and competence. Therefore, we suggest that the ultimate function of positive emotions is to create this value via accumulation of these resources. Conceiving of their function in this way allows modern theories of functionalism and positive emotions to synergize with decades of research in person perception and social cognition. The resources that positive emotions "broaden and build" create adaptive social value by cultivating warmth and competence. In this way, positive emotions motivate adaptive intertemporal decisions, incurring short-term costs for the long-term gains associated with the perception of these traits.

Of particular importance to theories of intertemporal choice, demonstrating warmth and honing competence often requires the delay of immediate gratification. Consider reciprocity, a crucial component of developing warmth. After receiving a benefit from another and being subsequently asked a favor in return, one might be tempted to refuse. After all, doing so would be the optimal short-term strategy—resources would have been acquired without any immediate costs. How can one resist this temptation?

Consider also perseverance, a crucial component of developing competence. When faced with the decision of whether to continue working or practicing, to turn on the television, or to take a nap, short-term logic would demand the latter. How do we resist televised marathons of *The Wire* when papers need to be written? We argue that these long-term tradeoffs are not predicted by controlled processes but by the effect of positive emotions. These states seem to be particularly effective means of achieving the same long-term goals that many decision scientists assign to self-control. If this is the case, if many of the adaptive intertemporal choices we make are mediated by the experience of positive emotional states, then this casts doubt on the simplistic dichotomy of emotion = now and reason = later that has been emphasized in much of the literature.

Evidence for the Intertemporal Function of Positive Emotions

Research into the function of discrete positive emotional states has flourished over the past decade. As evidenced by the contents of this handbook, the scope of inquiry of affective science has been broadening and building in its own right. Despite this breadth, the emotions described herein can all be described as contributing to adaptive intertemporal choice by foregoing immediate gains for the long-term social value associated with building warmth or building competence. We separate our discussion of the evidence supporting this conclusion accordingly, by first surveying the research into the states that build warmth (compassion, gratitude, love, elevation) followed by the states that build competence (pride, grit, hope, admiration/inspiration).

Positive Emotions and Warmth

The functional benefits of gratitude, compassion, and love seem to derive from their ability to increase an individual's long-term social value (and, consequently, their stability within a social group) by contributing to that individual's perceived warmth.

As suggested previously, one of the most common intertemporal choices confronted in social life involves "reciprocity"—the decision of whether or not to repay a benefit to another. The optimal short-term outcome would be to accept a benefit and not repay it. This would allow someone to capitalize on the charity of another, while incurring no costs associated with acting in kind. Of course, acting in this way carries the potential long-term cost of severing a valuable relationship and enduring the severe adaptive consequences of social ostracism, particularly if one gains a reputation as an individual who does not reciprocate (cf. Williams et al., 2003). So the decision of whether or not to reciprocate involves weighing the short-term benefits of saving energy and resources against the long-term benefits of a continued, fruitful relationship. One way to solve such an intertemporal choice would be to perform a cold calculus. Perhaps there is an intuitive, selfish desire to take a gift and run, and only our ability to think into the future and realize that such an action would ultimately jeopardize our well-being motivates reciprocity. Perhaps it could even be a simple awareness of the social norms regarding reciprocity.

Research into the function of *gratitude* suggests otherwise. Indeed, this body of work indicates that people are actually averse to reciprocal exchange when it is perceived to be the result of calculated expectation of future benefits (Tsang, 2006; Watkins, Scheer, Ovnicek, & Kolts, 2006). Gratitude is the emotion one feels when another person has intentionally given, or attempted to give, something of value (McCullough, Kilpatrick, Emmons, & Larson, 2001; McCullough & Tsang, 2004). Theorists expect that gratitude functions to encourage an individual to reciprocate a favor, even if such reciprocity will be costly to him or her in the short term. It is also expected that, over time, this reciprocal prosocial behavior aids in building trust and, consequently, in preserving valued relationships.

Both correlational (McCullough, Emmons, & Tsang, 2002) and experimental work (Bartlett & DeSteno, 2006) support this interpretation. In the experimental research, participants were made to experience the emotional state through staged interactions in which a confederate made a costly effort to help the participant with a difficult situation (a computer malfunction). At a time removed from the initial interaction, the participant (apparently incidentally) came across the confederate trying to find help for a research project. Participants previously made to feel gratitude helped significantly more than did participants made to feel amused or affectively neutral. Importantly, the same effect was found in a subsequent study when participants were approached by a confederate with whom they had *not* previously interacted, suggesting that the motivation to reciprocate and act charitably toward others stems from the emotional response, and not alternative factors, such as a reciprocity norm governing interpersonal interactions.

Follow-up research in support of these findings shows that gratitude motivates individuals to sacrifice time and money in the context of behavioral economic games (DeSteno, Bartlett, Baumann, Williams,

& Dickens, 2010). Evidence that gratitude motivates incurring short-term costs in this context would be particularly compelling given that most models of economic decision making assume a strong, intuitive desire for short-term self-interest. Decisions favoring communal interest over individual gain are thought to derive solely from the tamping down of emotional responses geared toward immediate gratification. In line with the adaptive intertemporal function of emotional states, however, experiencing gratitude mediated increased monetary giving in the short-term even when such giving increased communal gains at the expense of individual profit.

Importantly, gratitude operates to bring about long-term benefits in the absence of any *expectation* of these benefits. That is, the tradeoff between short-term and long-term rewards is built into the adaptive logic of the emotional state. Experiencing gratitude at time 1 leads to unintended and unexpected benefits to the self at time 2. In fact, the presence of the expectation has been found to lead to the quite negative psychological state of indebtedness. Participants are most averse to gifts when they perceive that a benefactor expects something in return. With increasing expectations of return come corresponding increases in the negative state of indebtedness, as well as decreases in gratitude (Watkins et al., 2006). When reciprocity becomes calculated, when people consciously make the tradeoff between short-term and long-term benefits, rather than bind individuals together, reciprocity pulls them apart. Emotions help us optimally navigate intertemporal space where more controlled processes fail.

Of course, altruistic action does not come only in the form of reciprocity. It is often theorized to emerge from a specific other-oriented emotional response, such as *compassion* or empathic concern (Goetz, Keltner, & Simon-Thomas, 2010), that is elicited by the sight of another's distress. The adaptive logic of such costly helping behavior, however, is identical to that of reciprocity. Coming to someone else's assistance, though immediately costly, communicates the kind of interpersonal warmth others seek from interaction partners and that will ultimately contribute to one's social value through the perception of warmth.

Love serves a similar function, but in the context of romantic relationships. In the course of maintaining long-term romantic bonds, partners face the problem of deciding whether to remain committed to one another in the face of immediately appealing alternatives that pose threats to the long-term viability of the relationship (Gonzaga, Keltner, Londahl, & Smith, 2001). By motivating approach behavior through gesture, touch, or verbal communication, the processes of trust, mutual dependence, and kindness are strengthened. Through distinct facial expressions, warmth is directly communicated to a partner, increasing his or her confidence and willingness to invest personally in the relationship.

Finally, *elevation* is elicited in response to acts of virtue or great moral beauty, and motivates one's desire to become a better person and to do good deeds (Algoe & Haidt, 2009)—to emulate the warmth of the moral actor. Importantly, the effects of elevation on prosocial motivations are distinct from those of other positive emotional states such as happiness and admiration (which seem to have comparable effects on motivation to emulate *competent* others, as we discuss later).

In summary, gratitude, compassion, love, and elevation contribute to the kinds of decisions and behaviors that result in foregoing immediate gains and accruing long-term benefits. By motivating behavior that contributes to the development of perceived warmth, these emotions help one build social value.

Positive Emotions and Competence

Social value derives from not only cooperative and collaborative intent but also the ability to act successfully upon these intentions. The functional benefits of pride, grit, hope, and the cluster of admiration/inspiration seem to derive from their ability to increase individuals' long-term social value (and, consequently, their stability within a social group) by contributing to their perceived competence.

As mentioned earlier, perseverance is a crucial component of developing competence. Past research has emphasized the importance of controlled processes as explanations for how individuals resist the

immediately appealing temptation of, say, taking a nap when work needs to be done. However, recent research into the function of *pride* suggests that there are other, and perhaps more effective, means of achieving long-term success.

Williams and DeSteno (2008, 2009) conducted a series of experiments in which they induced the experience of pride by providing false feedback regarding participants' performance on an ambiguous measure of cognitive ability (i.e., high performance scores and explicit praise by the experimenter). Other participants received either equally high performance scores in the absence of acclaim or no feedback at all. Supporting the view that pride motivates perseverance, proud participants worked signi?cantly longer on a subsequent onerous task, ostensibly related to the initial ability-assessing one. Moreover, levels of perseverance were directly predicted by the intensity of pride participants felt. Subsequent analyses con?rmed that increased perseverance could not be attributed to associated changes in self-esteem, self-ef?cacy, or general positive affect (Williams & DeSteno, 2008). These ?ndings indicate that pride leads to increased acceptance of short-term costs related to perseverance, and support the proposed role of pride in developing traits associated with competence.

A follow-up study provides an even more compelling demonstration of our theory: an empirical demonstration that *social value* increases as a function of perception of these traits. Williams and DeSteno (2009) asked participants to work in groups of three to solve a complex puzzle. They elicited pride in one participant by giving private acclaim for her ability on a prior task that ostensibly measured skills relevant to solving the puzzle. It was expected that proud individuals would later take on a dominant leadership role in working on the puzzle and, importantly, would also be perceived as more likable by their partners. Con?rming this view, proud participants were viewed as the most dominant members of the groups and were more liked by their counterparts. Furthermore, this increased social attractiveness of the proud participants was not simply a result of their increased efforts on the task, as effort alone did not predict liking. The increased liking of proud participants was driven by the perceived social value of a competent interaction partner. In other words, the experience of pride seems to motivate behaviors that increase an individual's value or status in the eyes of others.

The relationship between pride and perceptions of status has been further supported by research examining observers' reactions to nonverbal expressions of pride, attesting to the function of the emotional state as a marker of competence-based social value (see Shariff & Tracy, 2009).

Research into the function of states such as grit and hope suggests that these emotions operate according to a similar adaptive logic. Duckworth, Peterson, Matthews, and Kelly (2007) define "grit" as passion and perseverance for long-term goals—an emotion that motivates the sustained and focused application of effort over time. "Hope" has been defined as a combination of understanding how to achieve long-term goals and the desire to realize those goals (Snyder, 2002). While pride's influence on perseverance results from positive feedback regarding an ability, grit and hope seem to motivate perseverance even in the face of adversity, failure, and plateaus in progress. In other words, even when the immediate benefits of withdrawing effort from an activity are high, both physically and psychologically, these states motivate the incursion of short-term costs for long-term gains in skills and abilities. These findings are particularly compelling demonstrations of the adaptive intertemporal tradeoffs motivated by these competence-relevant positive emotions.

Finally, admiration and inspiration are elicited in response to witnessing acts of great skill or ability, and motivate the desire to emulate the target and to succeed (Haidt & Seder, 2009). The adaptive function of these states, again, is rooted in the benefits of individuals learning culturally valued skills or abilities from high-status others and the motivation to pursue these long-term goals (Algoe & Haidt, 2009).

In summary, pride, grit, hope, and the cluster of admiration/inspiration contribute to the kinds of decisions and behaviors that result in forgoing immediate gains and accruing long-term benefits. Through contributing to one's perceived competence, these emotions help to create social value.

Implications for Theories of Morality

It seems that humans are capable of experiencing a range of positive emotional states that are not geared toward approaching immediate gains. Models of intertemporal choice that insist intuitively appealing options are shortsighted may result from a lack of appreciation of this range—a function of the kinds of choices that participants typically face in decision science paradigms. This is not to say that self-regulation does not play a role in fostering adaptive behavior; it certainly does. However, by solidifying individuals' status in social networks through the cultivation of warmth and competence, specific positive emotions also represent response systems that motivate short-term sacrifices and long-term gains.

Adopting this view of the function of positive emotions and their relationship to social cognition has interesting implications for theories of morality. First, it casts aside simplistic theories of morality arguing that selfishness *equals* now, which *equals* emotion, by demonstrating that a range of emotional states (those that cultivate warmth) operate to stifle self-interest and focus us on the immediate well-being of others. It also sheds new light on what might be considered self-interested emotions (those that cultivate competence). Emotions such as pride and grit, though they do focus on developing individual skills and abilities, might also indirectly contribute to long-term collective well-being as a result of their effects on the collective capabilities of groups. If one adopts a definition of morality that places primary import on the ultimate flourishing of groups (cf. Haidt & Kesebir, 2010), then these competence-based emotions might also fall within the moral realm. Moral emotions have been defined as those "that are linked to the interests or welfare either of society as a whole or at least of persons other than the judge or agent" (Haidt, 2003, p. 853). Are emotional states that motivate individuals to incur short-term costs for the sake of developing individual skills and abilities still linked to the welfare of others? How might emotions that seem to motivate self-interested pursuits ultimately contribute to other-interest as well?

The idea that societies flourish when individuals pursue their own interests is not new, of course. Psychologists, particularly those interested in the function of social emotions, have long cited Adam Smith's *The Theory of Moral Sentiments* (1790/1976) as a reference attesting to the ubiquity of other-interested positive emotions, such as compassion, empathy, love, and gratitude, in social life. This is counterintuitive because Adam Smith is best known, primarily in *The Wealth of Nations* (1776/1937), for his advocacy of the pursuit of immediate self-interest as the key to flourishing societies. His theorizing on the power of free markets suggests that it is precisely the drive for self-interest through which societies advance. This idea was captured in Smith's metaphor of the *invisible hand:* Collective well-being is best achieved by groups of individuals who pursue their own advancement without concern for others. The engine of this process is *specialization.* Focusing individuals' efforts on skills/domains in which they have a comparative advantage ultimately benefits a community by maximizing the collective capabilities of group members, allowing for a potentially wider and richer distribution of resources, as well as a competitive advantage relative to other groups. Consequently, having motivations and emotions that foster such an end may ultimately benefit the community by enhancing the collective competence of a population.

We believe that Smith is right about the collective value created by self-focused motivational states, such as the competence-based positive emotions we have described in this chapter. Indeed, we agree with the sentiment that "by pursuing his own interest he frequently promotes that of the society more effectually than when he really intends to promote it" (Smith, 1776/1937, p. 423). By this reasoning, even competence-based positive emotions might be considered "moral emotions" according to some current and popular definitions.

We make this claim cautiously, however, because, on balance, academics interested in human nature have emphasized the import of self-interest to a much greater degree than that of other-interest, and we hesitate to perpetuate that mistake further. In the study of positive and moral emotions, however, the opposite mistake threatens to take hold. It is neither surprising nor particularly controversial to argue for the moral

importance of other-interested emotions to those who study the likes of emotions that appear in this handbook. But it is indeed a departure to argue for the moral importance of competence-based emotions, as doing so would seem to corroborate the kinds of self-interested views of human nature against which emotion researchers have sought to argue.

Those who might worry about championing the moral value of self-focused emotions need not worry. Social value, and therefore collective value, cannot be achieved through the honing of competence alone. Specialization only pays off when a market defined by the free-flowing *exchange* of resources has been established. In other words, societies flourish when composed of individuals who (1) maximize their individual potential in terms of skills/abilities and (2) are willing to exchange those resources with others. What drives this willingness? Smith (1776/1937, p. 14) initially offered a strong answer: "It is not from the benevolence of the butcher, brewer or baker that we should expect our dinner, but from a regard for their self-interest." On this we disagree. It is not solely through regard for their own interest that people in groups should expect their dinner—it is *also* through the benevolence of the butcher, brewer and baker.

A critical insight provided by sociobiology and functional accounts of emotion has been the adaptive value of other-interested emotional states—those that cultivate perceptions of warmth. If competence-based emotions motivate behaviors that contribute to specialization, then warmth-based emotions motivate behaviors that contribute to the desire to exchange the fruits of such specialization. A balance of these motivations maximizes long-term well-being. Societies composed of individuals with the intentions to act warmly toward others, as well as the capacity to act on those intentions, will best achieve long-term collective well-being. Theories arguing for the importance of competence without warmth ignore the social functions of other-interested emotional states (mediating the emergence of reciprocal altruism; cf. Trivers, 1971); those arguing for the importance of warmth without competence ignore the importance of the process through which individual resources contribute to collective value. From this perspective, then, it is no wonder that perceivers prefer people who are both warm and competent: These are the kinds of individuals who ultimately contribute to the flourishing of social groups.

Though Smith does indeed acknowledge that "how selfish 'soever man may be supposed, there are evidently some principles in his nature, which interest him in the fortune of others" (Smith 1790/1976, p. 9), he falls short of demonstrating how these principles of nature contribute meaningfully to societal flourishing. Indeed, it has been tempting for some philosophers, economists, and decision scientists to conclude from this lack of a functional argument that these other-interested motivations compromise collective well-being by distracting focus from self-interested pursuits. But competence needs warmth in order to translate social value into collective value. Other-interested motivations solidify social groups by establishing and maintaining mutually beneficial relationships, and by providing the proximal mechanisms that motivate exchange of resources that individuals have accrued. The positive emotions that motivate cultivation of both these traits are essential in the ultimate creation of flourishing societies and, consequently, can be considered moral emotions (cf. Valdesolo & DeSteno, 2011).

Conclusion

There is no question that positive emotions motivate the incursion of short-term costs for the sake of long-term gains and deserve a more prominent role in theories of intertemporal choice. Whether manifested as putting oneself in harm's way to help someone in danger or shooting 1,000 free throws after a long practice, these states are by no means shortsighted in adaptive value.

Why? If positive emotions broaden and build, then it makes sense that they would do so in a way that ultimately contributes to an individual's well-being. If well-being has in large part been determined by one's ability to become embedded in a stable social group, then these emotions should contribute meaningfully to that end. By cultivating warmth and competence, the two basic dimensions of person perception—the dimensions by which the character and

value of all individuals are judged—positive emotions accomplish exactly that.

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