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Self-Improvement

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Abstract

This article approaches the topic of improvement from a self-evaluation perspective, namely the interplay between the self-improvement motive and social or evaluative feedback. The self-improvement motive is reflected in conscious desire. It is also reflected in preferences for continuous upward feedback trajectories, upward comparison feedback, and feedback that may be self-threatening in the present but is likely to be useful in the future. The last type of feedback preference is stronger following a resource-bolstering experience (e.g. good mood, success feedback, self-affirmation). Moreover, both direct and indirect activation of the self-improvement motive facilitates recall of improvement-oriented feedback. Such feedback is associated with increased satisfaction or positive affect, a pattern qualified by individual differences (e.g. self-esteem, self-theories). Finally, improvement-oriented feedback yields better performance, a pattern also qualified by individual differences (e.g. self-enhancement, self-appraisal) as well as feedback attributes (gradual vs. sudden). This territory-mapping review will hopefully prove useful to future theorizing and research.

Self-Improvement

Never neglect an opportunity for improvement.

-- Sir William Jones

Let us strive to improve ourselves, for we cannot remain stationary;
one either progresses or retrogrades.

--- Mme. Du Deffand

He who stops being better stops being good.

--- Oliver Cromwell

The above admonitions paint improvement strivings as obligatory, inevitable, or moral. These messages may resonate with people today, partly because they are consistent with cultural imperatives (e.g. the American Dream; Wuthnow, 2006), religious doctrines (e.g. Sermon on the Mount; Matthew 5-7), and cultural discourse (e.g. rising from humble roots or overcoming personal adversity; McAdams, 2006). Reflecting the cultural relevance of improvement, a long tradition of theorists and researchers from a humanistic stance (Aron, Aron, & Smollan, 1992; Erikson, 1963; Maslow, 1970; Rank, 1936/1976; Rogers, 1961) or an achievement framework (Csikszentmihalyi, 1980; Deci & Ryan, 1991; Elliot & Thrash, 2001; Meece, Anderman, & Anderman, 2006; White, 1959) has advocated or demonstrated the benefits of psychological growth and self-expansion as well as learning and furthering one's capacities. Improvement is indeed an essential quality of a status-pursuing (Fiske & Berdahl, 2007; Guinote, 2007; Sedikides & Skowronski, 2000) organism.

In this article, we approach the topic of improvement from a self-evaluation perspective. Self-evaluation refers to the manner in which the self-concept is socially negotiated or modified (Sedikides & Gregg, 2003; Sedikides & Strube, 1997). It refers to the interplay between the individual and the social world. And it is concerned with

issues such as: What kind of feedback do individuals want? How do they go about selecting the feedback they want? How well do they remember the feedback? How does the feedback make them feel? How do they respond to the feedback they receive?

The motive of self-improvement (Sedikides, 1999; Sedikides & Strube, 1995) is an approach motive (Elliot & Mapes, 2005). It refers to the desire for feedback with improvement potential, henceforth called “improvement-oriented feedback.” Such feedback may provide tips on how one can accelerate progression toward a current goal or it may simply indicate that one is progressing well toward a current goal. Improvement-oriented feedback includes factual input, critical and useful suggestions, constructive advice, upward social comparisons, and information that follows an upward trajectory or permits temporal comparisons that convey progress.

The objective of this article is to map out the conceptual and empirical territory on self-improvement motive and social or evaluative feedback. We begin by asking whether and how the self-improvement motive is reflected in conscious desire or naturalistic discourse. We then turn our attention to the regulation of the self-improvement motive. How do people negotiate their preferences for improvement-oriented feedback with interpersonal or intrapersonal constraints? In particular, we examine whether and under what circumstances individuals prefer improvement-oriented feedback. Next, we discuss how well and under what circumstances individuals recall improvement-oriented feedback. Subsequently, we thrash out affective and performance consequences of improvement-oriented feedback. In the process, we will look at the interplay between self-improvement and other self-evaluation motives (e.g., self-protection, self-enhancement, self-assessment; Sedikides & Strube, 1997), where applicable. We end with a consideration of future research directions.

Naturalistic emergence of the self-improvement motive

Is the self-improvement motive reflected in conscious desire and/or naturalistic discourse? Evidence suggests that it is. People express openly a desire for self-improvement and identify precursors to self-improvement. For example, government employees report a desire for improvement-oriented feedback (Tuckey, Brewer, & Williamson, 2002). Male incarcerated juvenile offenders report that they want to receive improvement-oriented feedback, especially from psychologists, teachers, and parents (Neiss, Sedikides, Shahinfar, & Kupersmidt, 2006). Chinese undergraduate students also report that they want to receive improvement-oriented feedback, predominantly from teachers and friends (Cai, He, Sedikides, & Gaertner, 2009). Relatedly, young adults prefer to feel useful (vs. pleasant) emotions when their distant benefits outweigh their immediate benefits (Tamir, 2009).

In addition, improvement emerges as a silver lining in many a gray cloud: young adults identify either past threat and failure (Taylor, Neter, & Wayment, 1995) or a traumatic event (McFarland & Alvaro, 2000) as likely to activate the self-improvement motive. They also point to feedback about their future selves or to information resulting from upward social comparison as useful to their improvement strivings (i.e. to satisfying the self-improvement motive; Taylor et al., 1995). Furthermore, individuals low (vs. high) in self-esteem, who arguably need to improve more, state that they rely more on upward social comparison information for their improvement strivings (Wayment & Taylor, 1995).

Not only do people express a desire for self-improvement and identify precursors to it, but they also convey subjective perceptions of personal improvement. For example, young and middle-aged adults report that they have improved considerably from the past to the present on dimensions of well-being (i.e. self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, personal growth; Ryff, 1991), on the traits of the Big five personality factors (i.e. extraversion, agreeableness, conscientiousness, neuroticism, openness to experience; Fleeson & Heckhausen, 1997), on their marriages (Karney & Frye, 2002), and in general (Wilson & Ross, 2001). Moreover, young adults believe that their level

of achievement will increase more in the future than it has in previous years (Johnson, 2009).

These perceptions could reflect normative or cultural pressure to strive for improvement. However, they may also reflect the self-improvement motive. For example, individuals attend selectively to evidence of improvement in their personal histories and ignore evidence of decline (Albert, 1977). They derogate past selves more than recent selves, on important more than unimportant traits (Wilson & Ross, 2001). And they criticize or misremember their past to feel as if they have improved or are improving (Ross & Wilson, 2003). Further implicating motivation, people perceive improvement in themselves but not in their acquaintances (Wilson & Ross, 2001). Moreover, they are influenced by self-improvement motivation in the perception of their own ability and change, but not that of others (Jones, Rock, Shaver, Goethals, & Ward, 1968).

Summary

People naturally report a desire for self-improvement and also identify precursors to self-improvement. In addition, they convey subjective perceptions of personal improvement. These perceptions may be influenced partly by cultural mandates but also reflect the motive itself. Thus, self-improvement motivation is part of people's everyday lexicon and experience.

On self-improvement regulation: preferences for improvement-oriented feedback

How do people negotiate their preferences for improvement-oriented feedback with the presence of intrapersonal or interpersonal constraints? We address this question by reviewing literature regarding preferences for (a) upward feedback trajectories, (b) upward social comparison feedback, and (c) improvement-oriented feedback when other motives or states are satisfied.

Preferences for continuous upward feedback trajectories

People manifest preferences for hypothetical feedback that follows a continuous upward trajectory (with trajectory defined as the rate of increase compared to a previous rate) (Newby-Clark & Ross, 2003). Such preferences are stronger when individuals expect the feedback to be abstract rather than concrete (Robinson & Ryff, 1999), and to be temporally distant rather than immediate (Prelec & Loewenstein, 1997). These preferred types of feedback arguably allow more room for improvement. We will elaborate on the last-mentioned finding.

In a study by Loewenstein and Prelec (1991), when a delay choice (i.e. dinner at an upscale restaurant in one vs. two months) was framed singly, 80% of participants preferred the immediate option. However, when the delay choice was framed as a sequence (upscale restaurant vs. local restaurant, in one vs. two months), 57% of participants preferred the distant option. In follow-up research by Loewenstein and Prelec (1993), participants chose between hypothetical sequences of five weekends. Over 75% of them preferred sequences in which increasingly attractive (vs. medium or boring) weekends were later in the sequence. Importantly, research by Loewenstein and Sicherman (1991) shows that preferences for improvement-oriented feedback trajectories are strongest when they are self-relevant. Participants ranked their preferences for seven patterns of job income (i.e. performance-related feedback) or rental income (i.e. non-performance related). Income could increase to differing degrees, decrease, or remain stable over the next five years, with total income being held constant. On average, participants ranked highest the third steepest increasing wage profile, and the shallowest increasing rental profile. Strikingly, 83% of participants preferred increasing to decreasing wage profiles, whereas only 56% of them preferred increasing to decreasing rental profiles. This pattern of findings implicates more strongly the self, and thus the self-improvement motive.

Preferences for upward social comparison feedback

Upward social comparison for the purpose of self-improvement occurs frequently among normal adults (Wheeler & Miyake, 1992; for a review, see Collins, 1996). In

addition, upward comparison for informational purposes (e.g. successful engagement with a health problem) occurs frequently in dieting (Helgeson & Taylor, 1993), among arthritis patients (DeVellis et al., 1991), among cancer patients (Taylor & Lobel, 1989), and in cases of mental instability, coronary heart disease, diseases of the vertebrate system, and psychosomatic complaints (Buunk, 1995).

In general, preferences for upward (vs. downward) social comparison increase when self-threat is low; that is, when a task is not central to one's self-concept. Examples of such situations are leisure activities (e.g. bridge; Nosanchuk & Erickson, 1985) and novel tasks (Wheeler et al., 1969). Another influence on preference is the relevance of the comparison target to one's self. Individuals are more likely to upward compare with someone who excels in a domain that is irrelevant (vs. relevant) to the self (Tesser, 1988), and they are even willing to provide this target with improvement-oriented feedback (Pemberton & Sedikides, 2001).

Preferences for improvement-oriented feedback as a function of psychological resourcing

Preferences for improvement-oriented feedback vary predictably as a function of resource availability. Such resources include positive experiences, self-affirmation, and perceived control. We will discuss a few illustrative experiments.

Trope and Neter (1994) examined the role of positive experiences in preferences for improvement-oriented feedback. In particular, they provided participants with failure versus success feedback on a test (Experiment 1) or they put participants in a bad versus good mood (Experiment 2). Subsequently, they assessed participants' preferences for asset-focused feedback or liability-focused (and thus relatively improving) feedback. Participants who had a negative experience (i.e. failure test feedback, bad mood) opted for asset-focused feedback. However, those who had a positive experience (i.e. success test feedback, good mood) opted for liability-focused feedback. Such findings, though, are qualified by self-esteem. For example, high self-esteem individuals seek the most social comparison information following failure feedback, whereas low self-esteem individuals seek the most social

comparison information following success feedback (Wood, Giordano-Beech, Taylor, Michela, & Gaus, 1994).

Raghunathan and Trope (2002, Experiment 3) obtained conceptually similar findings. First, they induced in participants a bad, good, or neutral mood. Next, they presented them with an essay making five negative points (i.e. health risks), five positive points (i.e. health advantages), and five neutral points about caffeine consumption. After completing a thought-listing task, they finally assessed participants' attitudes and behavioral intentions toward caffeine consumption. Participants high (but not low) in caffeine consumption who were in a good (but not bad or neutral) mood expressed more unfavorable attitudes toward caffeine consumption and stronger intentions to reduce caffeine consumption. This implies that when psychologically resourced, participants processed the negative message and were motivated to self-improve.

Kumashiro and Sedikides (2005; see also Reed & Aspinwall, 1998; Sherman, Nelson, & Steele, 2001) were concerned with the role of self-affirmation (derived from relationships rather than personal values) in preferences for improvement-oriented feedback. Participants first took an allegedly valid intelligence test. Next, to manipulate self-affirmation, participants brought to mind and wrote about the relevance to them of either a close positive relationship or other types of relationships (i.e. close negative, neutral, distant positive, distant negative). Uniformly unfavorable test feedback followed. Then, participants chose the extent to which they desired additional feedback that focused on their liabilities (e.g. intelligence shortcomings). Participants expressed stronger interest in such improvement-oriented feedback in the close positive relationship condition than in any other condition.

Finally, Trope, Gervy, and Bolger (2003) examined the role of perceived control in preferences for improvement-oriented feedback. Participants who were either high or low on perceived social ability were granted the opportunity to receive either asset-focused or liability-focused feedback on the social domain. In one experiment, participants believed that social ability was either modifiable or

unmodifiable. In another experiment, participants believed that their behavioral expression of social ability was either controllable or uncontrollable. Participants low (vs. high) on social ability expressed stronger preferences for liability-focused (than asset-focused) feedback when they perceived control over their ability or its behavioral expression—that is, when they regarded the ability or its behavioral expression modifiable or controllable.

Summary

People express preferences for continuous upward feedback trajectories, particularly when self-relevant. They also prefer upward comparison feedback, provided that such feedback is not self-threatening. Finally, they opt for improvement-oriented feedback when they are psychologically resourced. Psychological resources (i.e. positive experiences, self-affirmation, perceived control) shield and boost participants to the extent that, feeling protected against threat, they daringly solicit feedback that may hurt them in the short run but benefit them in the long run via self-improvement. Other resources, such as optimism (Aspinwall & Brunhart, 1996) and positive self-views (Trope, Hassin, & Gervy, 2001), produce similar results patterns. The state of psychological resourcefulness, then, appears to be an enabler of self-improvement strivings (Sedikides, 2009). Alternatively, self-improvement strivings, given their daring and risk-prone nature, are facilitated by psychological resources as a stabilizing force.

On self-improvement regulation: recall of improvement-oriented feedback

How do people recall improvement-oriented feedback—a vital prerequisite for acting upon it later? We will address this question by reviewing literature about feedback recall when (a) the self-improvement motive is directly activated, (b) the self-improvement motive is indirectly activated, and (c) other motives or states are satisfied.

Feedback recall when the self-improvement motive is directly activated

Green, Sedikides, Pinter, and Van Tongeren (2009, Experiment 1) examined the impact of directly activated self-improvement on feedback recall. They used a sentence completion task (Brown & Zagefka, 2006) to prime self-improvement. Participants in the experimental condition were provided with a sheet with 20 sets of 4-6 words, and they were instructed to delete one word and use the remaining words to compose a correct sentence. Sixteen sets contained words associated with self-improvement (e.g. improved, aspirations, optimizes), whereas the remaining four sets consisted of filler words (e.g. regarded, heels, announced). In the control condition, 19 of the 20 sets contained filler words.

Next, participants took an allegedly valid personality test (i.e. the Minnesota Omnibus Personality Inventory, or MOPI). Some participants expected to receive feedback about themselves, others about a person named Chris who ostensibly had taken the MOPI before. Participants then received feedback in the form of behaviors that the participant or Chris was likely to perform. Some of these behaviors were positive, some negative. Also, some behaviors exemplified traits central to participants' self-definition (i.e. trustworthy, kind), others peripheral to participants' self-definition (i.e. modest, uncomplaining). One type of feedback, then, was self-threatening (reflecting central negative traits and referring to the self), another type of feedback was self-affirming (reflecting central positive traits and referring to the self). Following a distractor task, participants recalled the feedback as well as they could.

Green et al. (2009) reasoned that, in the control condition, the self-protection motive would influence feedback processing and recall. Participants would process self-threatening feedback (e.g. "An employer would not rely on you to have an important project completed by the deadline") shallowly and recall it poorly, as had been the case in prior research (Sedikides & Green, 2000, 2004). In the experimental condition, however, the self-improvement motive would influence feedback processing and recall. Participants would process self-threatening feedback (e.g. "You would not offer to care for a neighbor's child when the babysitter could not come") deeply and recall it well. The results were consistent with the hypotheses. In the

experimental condition, when self-improvement was primed, participants recalled self-threatening feedback just as well as self-affirming feedback. The results suggest that direct activation of self-improvement can tip the balance toward processing and recall of self-threatening (i.e. liability-focused) feedback.

Feedback recall when the self-improvement motive is indirectly activated

Green, Pinter, and Sedikides (2005) examined how the self-improvement motive, when indirectly activated, influences feedback recall. Participants were forewarned that they would receive hypothetical feedback. Half of them imagined that the feedback pertained to themselves, and the source of the feedback was a person who knew them well. The other half imagined that the feedback pertained to Chris, and the source of the feedback was a person who knew Chris well. In addition, half of the participants learned that they would receive feedback on unmodifiable traits, half on modifiable traits.

Behaviors exemplifying unmodifiable traits are relatively threatening, given that their implications are inescapable. Here, the self-protection motive would likely drive feedback processing and recall. Indeed, participants recalled poorly self-threatening (compared to self-affirming) feedback. Behaviors exemplifying modifiable traits, on the other hand, are relatively non-threatening, given that their implications are transient. Thus, processing the feedback thoroughly might confer long-term advantages (i.e. bettering one's important traits). Here, the self-improvement motive would likely drive feedback processing and recall. Indeed, participants recalled self-threatening feedback equally well as self-affirming feedback.

A similar logic underpinned another study (Green et al., 2009, Experiment 2) on the pragmatics of close relationships. People may have little incentive to attend to negative feedback by a stranger, as it will lack credibility and relational implications. Processing and recall of such feedback, then, would be influenced by self-protection concerns; that is, the feedback would be processed shallowly and recalled poorly. However, people have strong incentives to attend to negative feedback by a close other, as it is credible and has long-term relational implications. Processing and recall

of such feedback, then, would be influenced by self-improvement concerns; that is, the feedback would be processed deeply and recalled well.

Participants were accompanied in the laboratory either by a stranger or a close other (i.e. friend, romantic partner). They were assigned to work on a social perception task either with the stranger or the close other. They learned that one dyad member (the “receiver”) would complete a computer-based personality test. The test results would be reviewed by the other dyad member (the “sender”), who would provide feedback to the receiver. The two roles appeared to be randomly allocated, although in actuality all participants were assigned the receiver role. Next, participants completed the MOPI, and their test responses were ostensibly transmitted to the sender. They learned that the sender was sifting through their MOPI answers to gain insights into their personality, and had been instructed to select both positive and negative behaviors (from a larger pool of behaviors) that described the participant well. Finally, participants were provided with the feedback, which consisted of the same behaviors as in previously described experiments (Green et al., 2005; Green et al., 2009, Experiment 1). The results were consistent with the hypotheses. Participants recalled poorly self-threatening (compared to self-affirming) feedback, when its source was a stranger. However, they recalled self-threatening feedback relatively well (i.e. as well as self affirming feedback), when its source was a close other, implying openness to self-improvement.

Feedback recall when other motives or states are satisfied

Raghunathan and Trope (2002) examined the role of positive experiences (i.e. bolstering psychological resources) in recall of improvement-oriented feedback. Participants were either high or low in caffeine consumption. In Experiment 1, they provided participants with success or failure test feedback. In Experiment 2, they put them in a good or bad mood. Next, they presented participants with the caffeine consumption essay mentioned above (i.e. Raghunathan & Trope, Experiment 3). Finally, they instructed participants to recall the information. Success (vs. failure) test feedback led to relatively high recall of the negative points but only among

chronically high caffeine consumers. Apparently, resourced by a positive experience, these participants processed more elaborately the health risks associated with caffeine consumption (i.e. improvement-oriented feedback).

Green, Sedikides, and Gregg (2008, Experiment 2) also demonstrated that a positive experience gives rise to self-improvement. Participants initially received either success or failure feedback on a creativity test. Next, they were presented with behavioral feedback that stemmed from the way familiar others ostensibly perceived one's important social qualities (e.g. trustworthiness, kindness), as in research discussed previously (Green et al., 2005, 2009). Participants who had received failure test feedback recalled a disproportionately low amount of self-threatening (vs. self-affirming) feedback. However, participants who had received success feedback recalled self-threatening feedback just as well as self-affirming feedback. Armored and buoyed by a psychological resource, participants abandon self-protection concerns in favor of self-improvement concerns: They are able to take self-threatening feedback in their stride.

Summary

Direct activation (through priming techniques) of the self-improvement motive facilitates recall of feedback that is self-threatening in the short-run but has improving in the long-run. Indirect activation of the self-improvement motive (by making participants believe that the source of feedback is a close other) also leads to relatively good recall of self-threatening feedback, as does the influence of assorted psychological resources (e.g. success test feedback, good mood, self-affirmation, optimism). These preliminary findings on feedback recall, albeit informative, point to a gap in the self-improvement literature. Future research will do well to zero in on cognitive mechanisms through which feedback is processed, remembered, and translated into behavior.

Consequences of improvement-oriented feedback

Given that people desire, prefer, attend to, and recall feedback with improving potential, what are the consequences of improvement-oriented feedback? We will consider two types of consequences: affective and performance.

Affective consequences of improvement-oriented feedback

The rate of improvement is inherently important to self-regulation and should be hedonically rewarding. Carver and Scheier (1990; see also Kluger & DeNisi, 1996) proposed a meta-monitoring system function—a loop within a self-regulation feedback loop—that tracks the rate of reduction in discrepancy between standard and current state. When progress is rapid, discrepancy reduction is rapid, and progress is judged as high. Individuals have a desired rate of discrepancy reduction (i.e. standard) against which progress is compared. Progress faster than the standard results in positive affect, consistent progress at a fixed speed results in neutral affect, and progress slower than the standard results in negative affect. Carver and Scheier also reasoned that progress acceleration is associated with increases in positive affect or satisfaction (see also: Brickman & Hendricks, 1975; Houser-Marko & Sheldon, 2008). We will discuss illustrative experiments that demonstrate and qualify this principle. In particular, we will present findings pertaining to (a) indirect feedback trajectories and feedback satisfaction, (b) induced feedback trajectories and feedback satisfaction, and (c) multiple rounds of feedback (not involving trajectories) and feedback satisfaction.

Feedback trajectories and feedback satisfaction. Several studies have focused on satisfaction as a function of indirect or hypothetical feedback trajectory. Research by Hsee, Salovey, and Abelson (1994) is an example. Participants watched a pair of curves gradually unfold to represent two trajectories of self-relevant academic performance or investment values (Study 1), or they watched stock values change on a screen and moved a pointer to rate satisfaction during three hypothetical months (Study 2). Participants were more satisfied with the more positive trajectory, which most clearly implied improvement.

Ariely (1998) regarded the alleviation of negative experiences as improvement. Participants rated as less painful sequences of aversive stimuli (i.e. heat or mechanical vice) that became less intense over time and ended low in intensity compared to consistently aversive stimuli. When participants rated their experience continuously throughout the experiment rather than at the end, their overall evaluations of pain were more dependent on the final trend and their own mean continuous evaluation; for example, if pain increased, participants rated it more painful overall.

In other research, Ariely and Zauberman (2000) demonstrated that sequences are evaluated on average intensity and the trajectory of final intensity. Participants rated noxious sounds as more annoying when intensity ended with an increasing (vs. decreasing) trend, even though total intensity was equal. The impact of the pattern was stronger when sounds were played continuously (i.e. evaluated as a coherent whole) rather than when played with gaps (i.e. evaluated as discrete events). The same results pattern was obtained when participants rated stock market portfolios that changed over time. Overall, then, performance is rated as more satisfying when it ends with an increasing trend, especially when it is presented as a continuous trajectory.

Given that even reinforcing behaviors are subject to habituation (Domjan, 2006), consistently positive feedback may decrease in satisfaction over time. Research by Brickman, Coates, and Janoff-Bulman (1978) backs this proposition. Consistently favorable circumstances (e.g. winning the lottery) become less satisfying over time.

Induced feedback trajectories and feedback satisfaction. Several studies have focused on satisfaction as a function of induced feedback trajectory. In research by Aronson and Linder (1965), participants liked an evaluator best when, over a series of seven brief meetings, their overheard (via a one-way mirror) evaluations of them moved from negative to positive, and they liked the evaluator least when their overheard evaluations of them moved from positive to negative. Consistent (i.e. either positive only or negative only) evaluations were in between. An upward feedback

trajectory, then, is more satisfying than consistently positive feedback. Such feedback may also be more internalized (i.e. attributed to one's ability) than consistently positive or variable trajectory feedback (Markman, Elizaga, Ratcliff, & McMullen, 2007; Nicholls, 1975).

Other research has shown that satisfaction with induced feedback trajectory is qualified by referent (self vs. other). In particular, Jones et al. (1968) found that responses to feedback trajectory are different for self versus other. These responses are driven by recency for the self and by primacy for the other. Participants were presented with a target who solved 15 out of 30 problems in an ascending (i.e. improving), descending, or random order. Participants perceived the descending target as more intelligent and more likely to outperform the ascending and random targets in the future (Experiments 1-5). In a final experiment, participants themselves solved the problems in an ascending, descending, or random order, and subsequently estimated their future performance. The ascending performers expressed more confidence about their ability than the descending or random performers. The authors interpreted this finding as reflecting classic (Heider, 1958) self-other attributional differences. Participants attributed others' initial performance to dispositional characteristics but attributed their own performance to task characteristics.

Satisfaction with induced feedback trajectory is also qualified by self-esteem. In Study 1 of Brown, Farnham, and Cook (2002), participants interacted with, and received positive versus negative feedback from, two persons. In Study 2, participants completed two successive tests (i.e. integrative orientation, social sensitivity), and received positive versus negative feedback after each test. For low self-esteem participants, the positive→negative feedback trajectory led to worse mood than consistently negative feedback, whereas the pattern was reversed for high self-esteem participants. Responses to the negative→positive trajectory and consistently positive feedback were equally positive for high and low self-esteem participants. In sum, decline was more emotionally costly than consistent failure for low self-esteem

participants, whereas success and improvement were comparable for low and high self-esteem participants.

Finally, satisfaction with induced feedback trajectory is qualified by lay self-theories (i.e. incrementality vs. entity; Dweck, 2000; see also Cury, Elliot, Fonseca, & Moller, 2006). In a study by Plaks and Stecher (2007), participants completed two integrative orientation tests separated by a “lesson” purported to introduce plausible improvement. Feedback in test 1 was moderate (61st percentile). Feedback in test 2 either improved (91st percentile), remained constant (62nd percentile), or declined (29th percentile). Participants who endorsed incremental theories of intelligence reported lower anxiety after improvement-oriented feedback than constant feedback (with declining feedback in between), whereas those who endorsed entity theories of intelligence reported lower anxiety after constant feedback than either improving or declining feedback. A second study that experimentally induced lay theories replicated this pattern. Although this research established individual differences in felt anxiety as a function of improving versus declining feedback, it did not assess satisfaction with feedback. Thus, incremental and entity theorists may have felt differentially anxious but equally satisfied with their performance.

Multiple rounds of feedback and feedback satisfaction. Research has also examined whether and how multiple rounds of feedback influence satisfaction with it. In Houser-Marko and Sheldon (2008, Study 2), participants set academic goals—a primary goal (i.e. grades) and a subgoal (i.e. number of hours studying)—and reported natural progress as well as success or failure related to their goals each week for a period of eight weeks. Higher amounts of cumulative progress across seven weeks predicted more positive affect and less negative affect, demonstrating in a naturalistic way the satisfaction induced by self-improvement. Success versus failure each week predicted positive and negative affect that week. Conceptually similar findings have been reported by Brickman and Hendricks (1975).

Hepper, Luke, and Sedikides (2008) manipulated the trajectory of feedback received by participants. In Study 1, participants completed four successive

psychometric tests (e.g. creativity, social perceptivity) and received feedback after each test. The feedback was either consistently positive (i.e. successive percentile scores of 92, 90, 91, then 92) or improving (i.e. 59, 68, 81, then 92). Whereas satisfaction with the consistently positive feedback decreased over the four rounds, satisfaction with the improvement-oriented feedback increased.

In further studies (Hepper et al., 2008, Study 2, 3, and 4), participants first learned that performance in a computerized simulation of the stock market predicted success at university and in future careers. Then they proceeded to complete seven rounds of investment and received performance feedback (i.e. money gained or lost) after each round. The feedback was consistently positive (e.g. they gained between 14% and 19% in every round and were told their performance was “extremely good”), consistently neutral (e.g. they never gained or lost any money and were told their performance was “stable”), or improving (i.e. upward trajectory; they gained increasing amounts of money, from 0% and “stable” in round 1, to 19% and “extremely good” in round 7). Furthermore, satisfaction with feedback was assessed after each round (Study 2, 3) or after all rounds (Study 4). When examined after each round, participants in the improving condition became more satisfied over time, such that from time 3 onward, improvement-oriented feedback was rated equally as satisfying as consistently positive feedback and more satisfying than neutral feedback. When examined after all feedback, improvement-oriented feedback and consistently positive feedback were rated equally satisfying overall, and more so than neutral feedback. Thus, it seems that satisfaction with feedback closely tracks the positivity of that feedback as well as its progress: an upward trajectory does not convey *more* satisfaction than consistently positive feedback, but it does convey *equal* satisfaction overall, despite an earlier disadvantage in positivity.

Performance consequences of improvement-oriented feedback

Does improvement-oriented feedback affect performance? This is a crucial question for understanding the behavioral component of self-improvement. We will address this question by reviewing findings regarding performance (a) in a subsequent session

as a function of first-session feedback, (b) as a function of multiple rounds of feedback, and (c) as a function of upward social comparison.

Performance in a subsequent session as a function of first-session feedback.

Several studies have employed a paradigm in which they provide feedback in the first session of a task and then assess performance in the second session of the same task. Research by Kurman (2006) is an example. In the first session, participants completed geometric test, including some unsolvable problems, and received negative feedback (30-35th percentile). After a week, they completed a solvable version of the same test. Self-enhancement (i.e. expecting greater success in the first round than actually achieved) positively predicted change in practice time (i.e. improvement behavior) in second session, which predicted performance (i.e. actual improvement). Study 2 replicated this pattern in a naturalistic setting involving maths performance reported at two time points three months apart.

Strube and Yost (1993) examined the role in this process of an individual difference, self-appraisal. This refers to the extent to which individuals are predisposed to seek accurate information about themselves. The authors reasoned that exertion of higher effort following failure should be more characteristic of high rather than low self-appraisers. In one study, participants were followed through an academic course, and their performance improvement versus decrease across two exams was recorded. In another study, participants were given easy or difficult anagrams (and corresponding feedback) and their subsequent performance was recorded. High (but not low) self-appraisers performed better in the second exam or task, if they had performed badly in the first exam or task. This suggests that self-assessment, as well as improvement-oriented feedback, is a precursor to self-improvement (cf. Gregg, Hepper, & Sedikides, 2009; Sedikides & Skowronski, 2000).

Finally, Vancouver, and Tichner (2004) examined the interplay between psychological resources and negative feedback. Participants completed a resource-sensitive (i.e. challenging) or resource-insensitive (i.e. simple) task and were given either negative or positive feedback (25% vs. 75% of the relevant peer distribution).

Half of the participants self-affirmed following feedback. Next, all participants completed another round of the same task. When the task was resource-insensitive or the participants had self-affirmed, performance was slightly better after negative than positive feedback. However, when the task was resource-sensitive and the participants had not self-affirmed, performance was worse after negative than positive feedback. This behavioral result echoes the abovementioned findings that self-improvement demands or thrives on psychological resources (e.g. Kumashiro & Sedikides, 2005; Raganathan & Trope, 2002).

Performance as a function of multiple rounds of feedback. The timing of feedback (especially feedback on difficult tasks) affects performance. Participants in a study by Tonidandel, Quiñones, and Adams (2002) engaged in adaptive tests. Such tests comprise questions that are tailored to the ability of each examinee (e.g. they often administer items that a particular examinee has a 50% probability of answering correctly). Performance is scored on how difficult the correctly answered items are rather than on number of correctly answered items. Tonidandel et al. manipulated orthogonally the difficulty level of initial items (easy, medium, hard) and the difficulty level of subsequent items (easy, medium, hard). Participants who received more difficult initial items and those who received more difficult subsequent items perceived their performance as more negative, despite actually performing well. These perceptions then led to lower motivation to improve (see also Cope & Sigall, 1967).

Brickman and Hendricks (1975) demonstrated that gradual (as opposed to sudden) improvement-oriented feedback leads to better performance, presumably because gradual feedback is diagnostic of mastery. Participants completed a reaction time task while expecting either gradual or sudden improvement. Next, they received either success or failure feedback. Those who expected gradual improvement performed better when they were failing (vs. succeeding), performed better overall, and were more confident about similar tasks in the future. On the other hand, those who expected sudden improvement performed better when they were succeeding (vs.

failing). Somewhat relatedly, Houser-Marko and Sheldon (2008) found that perceptions of progress boost performance expectations related to one's goals.

Some studies have been concerned with self-efficacy as a moderator of feedback-relevant performance. After a baseline physical task session, Bandura and Cervone (1983) gave participants either (a) the goal to improve by 40%, (b) feedback after the second session that they had improved by 24%, (c) both goal and feedback, or (d) neither goal nor feedback. The combination of an improvement goal and improvement-oriented feedback led to better performance in the third session than any other condition. Furthermore, in the feedback-alone condition, participants who spontaneously set their own goals (and thus had higher state self-efficacy) improved more in the third session than those who did not. In another study by Nease, Mudgett, and Quiñones (1999), participants completed three rounds of a decision-making task, and received feedback that was either invariably positive (performed 20% above goal) or invariably negative (performed 20% below goal). High self-efficacy participants were less likely to endorse negative feedback over time, whereas this trend was not observed among low self-efficacy participants. Endorsing positive or negative feedback led to (positive or negative, respectively) changes in self-efficacy over time, such that participants in the two conditions did not differ after the first or second round, but those in the positive condition felt more efficacious and endorsed feedback more than those in the negative condition after the third round.

Performance as a function of upward social comparison. Comparisons with a superior other can be beneficial, as they provide a positive role model and can strengthen a positive future self (Lockwood & Kunda, 1997). Students in whom a positive future self is fostered (i.e. visualizing oneself as a successful adult) become more interested in school, more diligent, and less socially disruptive (Oyserman, Terry, & Bybee, 2002). In general, upward social comparison (e.g. comparing oneself to a successful peer) improves school performance (Huguet, Dumas, Monteil, & Genestoux, 2001). In a similar vein, upward counterfactuals (i.e. thoughts about how a situation might have been better) about a poor exam result in stronger intentions for

academic success (Roose, 1994), higher task persistence (Markman, McMullen, & Elizaga, 2008), and better performance (Gollwitzer, Wieber, Myers, & McCrea, in press).

Summary

No matter how improvement-oriented feedback is delivered (i.e. in terms of upward trajectories, induced trajectories, or multiple rounds), it is associated with increased satisfaction or positive affect. This finding is qualified by referent (self vs. other), self-esteem (high vs. low), and lay self-theories (incrementality vs. entity). In addition, improvement-oriented feedback yields better performance. This finding holds regardless of the exact relation between the two variables—that is, whether performance is assessed in a subsequent session as a function of first-session feedback, whether performance is assessed following multiple rounds of feedback, and whether performance is a function of upward social comparison. Nevertheless, the findings are qualified by self-enhancement (i.e. unduly positive vs. realistic expectations of success), self-appraisal (high vs. low), self-affirmation, test difficulty, and the gradual versus sudden nature of the improvement-oriented feedback.

Future research directions

Many issues surrounding the self-improvement motive are deserving of empirical attention. These issues include situational determinants of self-improvement, personality moderators of self-improvement, and cultural influences on self-improvement.

One example of *situational determinants* refers to psychological states. We presented evidence that individuals who are psychologically resourced are more likely to endorse or pursue improvement-oriented feedback, despite its short-term threat potential. It follows that ego replenished (vs. depleted) individuals will also be more likely to solicit improvement-oriented feedback (Baumeister, Gailliot, & DeWall, & Oaten, 2006). Another example of situational determinants refers to expectancies or goals. Positive expectations, especially when individuals mentally contrast a desired

future with their current state, may be more likely to lead to the solicitation of improvement-oriented feedback and actual improvement than positive fantasies (e.g. indulging on one's strengths; Oettingen & Thorpe, 2006). Likewise, mastery and performance-approach goals will be more likely to render improvement-oriented feedback appealing (and to be associated with enhanced performance; Elliot & Church, 1997; Ilgen & Davis, 2000; but see Janssen & Prins, 2007), as will be harmonious rather than obsessive passion (Vallerand et al., 2007). Feedback attributes are also relevant: Feedback would need to provide sufficient information for the recipient to form hypotheses about how to improve performance (DeNisi & Kluger, 2000). Finally, potential for evaluation on task performance increases effort, which in turn improves performance on simple (but debilitated performance on complex) tasks (Harkins, 2006).

Our review highlighted a few *individual differences* that have been implicated in self-improvement research, but exploration of additional individual differences is warranted. Narcissists are overly concerned with self-enhancement and self-aggrandizement (Sedikides & Gregg, 2008). As such, are they less likely than their counterparts to engage in self-improvement strivings and more likely to engage in self-protection or self-enhancement strivings? The same pattern (i.e. underpursuit of self-improvement strivings) may manifest itself for self-handicappers and defensive pessimists (Elliot & Church, 2003). On the other hand, self-compassionate (Neff, 2003), perfection striving (Stoeber & Rambow, 2007), or securely attached (Green & Campbell, 2000) individuals may overpursue self-improvement strivings at the expense of self-protection strivings. Regulatory focus is also relevant to self-improvement. Research by DeNisi and Kluger (2000) suggests an interesting interplay between regulatory focus and the valence (i.e. positivity-negativity) of feedback. The regulatory fit pattern is as follows: Prevention focus and negative feedback strengthen the self-improvement motive (i.e. elevate the desire to improve), as does promotion focus and positive feedback. The other two regulatory focus-feedback combinations,

however (i.e. prevention focus and positive feedback, promotion focus and negative feedback), have no effect on motive strength.

Finally, the topic of *cultural influences* on self-improvement has entered the empirical agenda. In reviewing the consequences of improvement-oriented feedback, we discussed affective consequences (e.g. satisfaction) and performance consequences separately. Nevertheless, a long line of research from a self-determination theory perspective (e.g. Deci, 1971; Deci, Koestner, & Ryan, 1999; Levesque, Zuehlke, Stanek, & Ryan, 2004; Mouratidis, Vansteenkiste, Lens, & Sideridis, 2008) and an achievement perspective (e.g. Butler, 1987; Harackiewicz, 1979; Harackiewicz, Manderlink, & Sansone, 1984; Sansone, 1989) has established that feedback satisfaction predicts future performance (by increasing perceptions of autonomy, vitality, competence, or enjoyment). Further, exaggerating one's academic performance has performance advantages (Gramzow, Elliot, Asher, & McGregor, 2003), and satisfaction with feedback predicts health behavior maintenance (Rothman, 2000). These studies, however, have been conducted in the West. Members of western culture are more strongly driven by approach than avoidance goals (Elliot, Chirkov, Kim, & Sheldon, 2001). Indeed, evidence indicates that feedback satisfaction (e.g. praise) is a more potent predictor of self-improvement strivings in the West than the East, but feedback dissatisfaction (e.g. criticism) is a more potent predictor of self-improvement strivings in the East than West (Hamamura & Heine, 2008).

Coda

This article attempted to chart the conceptual and empirical terrain occupied by the interplay between the self-improvement motive and social or evaluative feedback. The self-improvement motive is reflected in conscious desire. It also reflected in preferences for continuous upward feedback trajectories, for upward comparison feedback, and for feedback that is threatening in the short-run but likely useful in the long-run. Moreover, activation of the self-improvement motive facilitates recall of improvement-oriented feedback. Such feedback is satisfying and is associated with

better performance. Finally, these findings are qualified by individual differences. We hope our efforts provide a fertile ground for future theorizing and research.

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