

Chapter Fifteen

Goal Setting and Goal Striving

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In this chapter we focus on the determinants and processes of goal emergence and goal implementation. We first address personal and situational variables leading to the formation of behavioral goals and what kind of psychological processes help or hinder goal setting. In the second part of the chapter, we discuss how set goals of different qualities predict goal attainment and which self-regulatory strategies help successful goal striving. Goal effects on cognition are discussed as possible mediators of the goal-behavior link.

The History of the Goal Concept

Behaviorists recognize goal-directed behavior by its features. Goal-directed behavior is *persistent*. A hungry rat persists in searching a maze until the pellets are reached (Tolman, 1925). Goal-directed behavior is *appropriate*. When one path is blocked, another path to the same goal is taken, or if the goal moves, the organism readily follows it. Finally, goal-directed organisms start *searching* when exposed to stimuli associated with the goal.

A behaviorist's statement that a certain piece of food is a goal for the hungry organism means (1) that the food qualifies as an incentive for the organism, and (2) that the researcher has chosen to describe the behavior of the organism relative to the food stimulus rather than relative to any other object or event. Skinner (1953) referred to goal-directedness as a shorthand description of behavior resulting from some kind of operant conditioning. Thus in the behaviorist tradition, the reference point for goal-directed behavior is not the intention or the goal set by the organism itself.

In contrast, the reference point of modern goal theories is the internal subjective goal. Goal-directed behavior refers to goals held by the individual (e.g. a person's goal to stop smoking serves as the reference point for his or her efforts to achieve this goal). Research questions focus on how and in what form goals are set and how goal setting affects behavior.

The behaviorist distinctions between needs (motives), incentives, and goal-directed behavior are, however, still present in modern goal theories which consider needs (e.g. the need for approval) as forces that narrow down classes of incentives (e.g. being popular or accomplished), and see behavioral goals in the service of these incentives. For example, Geen (1995) defined an incentive as a desired outcome that subsumes several lower order goals. Incentives (e.g. being popular or accomplished) are considered to be a product of a person's need (i.e. the need for social approval) and the perceived situational opportunities (i.e. the person's friends or scientific community, respectively). Intentions to attain popularity or to accomplish outstanding scientific achievements are understood as higher order goals served by many lower order behavioral goals (e.g. intending to use the weekend to visit friends or to write an outstanding scientific article, respectively).

The modern perspective of analyzing goal-directed behaviors in relation to subjective goals has its own precursors: William James and William McDougall in America, and Narziß Ach and Kurt Lewin in Europe. In his *Principles of Psychology* (1890/1950) James held that behavior can be regulated by resolutions (i.e. intentions, subjective goals), even though this may be difficult at times. However, if certain preliminaries are fulfilled, behavior specified in resolutions comes true. McDougall (1908/1931) postulated that goals guide behavior through cognitive activity that pertains to the analysis of the present situation and the intended goal. Progress towards, and the attainment of, the goal are seen as pleasurable and thwarting and failing as painful.

In Europe, the scientific debate on goal striving was dominated by controversy between Ach and Lewin. Ach (1935) assumed that mental links between an anticipated situation and an intended behavior create what he called a determination, which urges the person to initiate the intended action when the specified situation is encountered. The strength of a determination should depend on how concretely the anticipated situation is specified and on the intensity of the intention. Determination was seen as directly eliciting the behavior without conscious intent. Lewin (1926) critically referred to Ach's ideas as a "linkage theory of intention" and proposed a need theory of intention. Goals (intentions), like needs, are assumed to assign a valence (*Aufforderungscharakter*) to objects and events in one's surroundings. Similar to basic needs (e.g. hunger) which can be satisfied by a variety of behaviors (e.g. eating fruit, vegetables, or bread), the quasi-needs associated with intentions (e.g. to be popular) may be satisfied by various behaviors (e.g. inviting one's friends for a party, buying birthday gifts). The tension associated with the quasi-need determines the intensity of goal striving. This tension depends on the strength of relevant real needs (i.e. superordinate drives or general life goals) and how strongly these are related to the quasi-need. Lewin's tension-state metaphor accounts for the flexibility of goal striving.

Many of the ideas on goal-directed behaviors as presented by James, McDougall, Ach, Lewin, and the behaviorists, have been absorbed into modern goal theories, whereby goal implementation has received much more theoretical and empirical attention than goal setting. Karoly (1993, p. 27) states that "the study of goals as dependent variables remains infrequent" and Carver & Scheier (1999) conclude that "the question of where goals come from and how they are synthesized is one that has not been well explored." We will start, then, with the question of what factors determine goal selection and which psychological processes promote goal setting.

Goal Setting

Determinants of goal setting

Assigned goals Goals are often *assigned* by others (e.g. employers, teachers, parents). It matters who assigns goals to whom, and how the persuasive message is framed. Relevant variables may include attributes of the source, the recipient, and the message (McGuire, 1969). Locke & Latham (1990) report that source variables, such as legitimacy and trustworthiness, play an important role in the transformation of an assigned goal into a personal goal. For recipients of such assignments, perception of the goal as desirable and feasible, personal redefinition of the goal, and integration with other existing goals are important (Cantor & Fleeson, 1994). Finally, relevant message variables may be the discrepancy between the suggested goal and the recipient's respective current goal (e.g. when a very low calorie diet is suggested to a person with a moderate dieting goal), and whether fear appeals are used (e.g. information on the dramatic medical consequences of health-damaging behavior is provided). Effective sellers of goals must also consider the processing ability and motivation of the recipient as a moderator of the effects of source, recipient, and message variables on accepting assigned goals as personal goals (Petty & Cacioppo, 1986; Chaiken, 1987).

Self-set goals Goals do not need to be assigned, as people also set goals on their own. Self-set goals, however, are often influenced by others, for example, when goals are conjointly set (e.g. in participative decision making and employee involvement; Wilpert, 1994), or when goals are adopted from highly respected models (e.g. adopting standards for self-reward: Mischel & Liebert, 1966). Cantor & Fleeson (1994) point out that social context cues, such as normative expectations of the social community, also influence goal selection.

The personal attributes that most strongly determine goal choice are perceived desirability and feasibility. People prefer to choose goals that are desirable and feasible (Ajzen, 1985; Heckhausen, 1991; Gollwitzer, 1990; Locke & Latham, 1990). Desirability is determined by the estimated attractiveness of likely short-term and long-term consequences of goal attainment. Such consequences may pertain to anticipated self-evaluations, evaluations by significant others, progress toward some higher order goal, external rewards of having attained the goal, and the joy/pain associated with moving towards the goal (Heckhausen, 1977). Feasibility depends upon people's judgments of their capabilities to perform relevant goal-directed behaviors (i.e. self-efficacy expectations; Bandura, 1997), their belief that these goal-directed behaviors will lead to the desired outcome (i.e. outcome expectations; Bandura, 1997), or the judged likelihood of attaining the desired outcome (i.e. generalized expectations; Oettingen, 1996) or desired events in general (general optimism; Scheier & Carver, 1985). The information source for efficacy expectations, outcome expectations, generalized expectations, and optimism is past experiences: one's own past performances, the observed performances of others, received relevant persuasive messages, and one's previous physiological responses to challenge (Bandura, 1997). Proper assessment of the feasibility and desirability of a potential goal also requires seeing the goal

in relation to other potential goals. A goal associated with many attractive consequences may suddenly appear less desirable in light of a superordinate goal, or it might seem more feasible in connection with other, compatible goals (Cantor & Fleeson, 1994; Gollwitzer, 1990).

Estimated desirability and feasibility determine the choice of a goal's difficulty level. Festinger (1942), in his theory of resultant valence, argued that people choose goal difficulty levels where the resultant expected valence is the highest – this being a multiplicative function of the probability of success or failure and the valence of success or failure. Atkinson's (1957) risk taking model modified and extended Festinger's reasoning to make separate predictions for individuals with hope for success versus fear of failure. The latter prefer low and high difficulty levels, whereas the former choose goals of medium difficulty.

Set goals may also differ in other structural features (e.g. abstract vs. concrete) and in content (e.g. materialistic vs. social integrative). People generally prefer to set themselves abstract goals, and adopt concrete goals only when they run into problems attaining an abstract goal. According to act identification theory (Vallacher & Wegner, 1987), people conceive of their actions in rather abstract terms (e.g. cleaning the apartment) and only drop down to lower, concrete levels (e.g. vacuuming the carpet) when difficulties in carrying out the activity as construed at the higher level arise. Some people typically think of their actions in low-level terms, whereas others prefer high-level identifications (Vallacher & Wegner, 1989). This general preference for either an abstract or a concrete level of identifying actions should be reflected in the choice of abstract versus concrete goals.

Goals can be framed with a positive or negative outcome focus (i.e. goals that focus on establishing and keeping positive outcomes as compared to avoiding and ameliorating negative outcomes). Higgins (1997) argues that people construe their self either as an ideal self that they intrinsically desire to be, or as an ought self that they feel compelled to be. The former orientation focuses on promotion, whereas the latter focuses on prevention. Part of the promotion orientation is a predilection for setting goals with a positive outcome focus, whereas part of the prevention orientation is a predilection for setting goals with a negative outcome focus.

Goals can also be framed as performance versus learning goals (Dweck, 1996), also referred to as performance versus mastery goals (Ames & Archer, 1988), or ego involvement versus task involvement goals (Nicholls, 1979). Goals in the achievement domain, for example, can either focus on finding out how capable one is (performance goals) or on learning how to carry out the task (learning goals). Dweck (1996) reports that implicit theories on the nature of ability determine the preference for performance versus learning goals. If people believe that ability is fixed and cannot be easily changed (i.e. hold an entity theory of ability), they prefer performance goals. However, if people believe that ability can be improved by learning (i.e. hold an incremental theory of ability), they prefer learning goals. Similar implicit theories concerning the malleability of moral character affect the selection of punitive versus educational correctional goals.

The content of set goals is influenced by needs, wishes, and higher order goals. Ryan, Sheldon, Kasser, & Deci (1996) argue, for example, that the content of people's goals reflect their needs. Autonomy, competence, and social integration needs are expected to promote goal setting focused on self-realization rather than materialistic gains. Markus & Nurius (1986; Oyserman, chapter 23, this volume) argue that people conceive of

themselves not only in terms of what they are (i.e. the self-concept), but also what they wish to become in the future (i.e. the possible self). These possible selves should give people ideas on what kind of personal goals they may strive for.

Once higher order goals are formed (e.g. to become a physician), they determine the contents of lower order goals. The contents of such "Be" goals determine the contents of respective "Do" goals which in turn determine the contents of respective "motor-control" goals (Carver & Scheier, 1998, p. 72; Carver, chapter 14, this volume). "Be" goals have been described by using terms such as current concerns (Klinger, 1977), self-defining goals (Wicklund & Gollwitzer, 1982), personal projects (Little, 1983), personal strivings (Emmons, 1996), and (individualized) life tasks (Cantor & Fleeson, 1994). Whereas choosing higher order "Be" goals should be determined by their perceived desirability and feasibility (Klinger, 1977), choosing the respective lower order "Do" goals also depends on the commitment to the respective "Be" goals (Gollwitzer, 1987).

Processes of goal setting

Reflective processes So far we have discussed which variables determine the choice of goals with certain structural and thematic features. We now consider the question of what triggers goal setting. Bandura (1997) suggests that having successfully achieved a set goal stimulates the setting of ever more challenging goals, due to a person's heightened sense of efficacy which is based on having successfully attained the prior goal. Others have pointed out that the core processes of goal setting involve committing oneself to achieving a certain incentive (Klinger, 1977). Heckhausen & Kuhl (1985) argued that the lowest degree of commitment to an incentive is a mere wish to attain it. A wish that is tested for feasibility becomes a want which carries a higher degree of commitment. To develop a full goal commitment (i.e. to form the intention or goal to achieve the incentive), a further relevance check must be carried out relating to necessary means, opportunities, time, relative importance, and urgency.

In their Rubicon model of action phases Heckhausen & Gollwitzer (1987; Heckhausen, 1991; Gollwitzer, 1990) assume that people entertain more wishes than they have time or opportunities to realize. Therefore they must select between wishes in order to accomplish at least some of them. The criteria for selection are feasibility and desirability. Wishes with high feasibility and desirability have the best chance to become goals. The transformation of wishes into goals is a resolution, resulting in a feeling of determination to act. Through this resolution the desired end state specified by the wish becomes an end state that the individual feels committed to achieve. To catch the flavor of this transition from wishing to willing, the metaphor of crossing the Rubicon is used.

What are the preliminaries of crossing the Rubicon? The model of action phases (Gollwitzer, 1990; Heckhausen, 1991) states that the realization of a wish demands the completion of four successive tasks: deliberating between wishes to select appropriate ones (predecision phase), planning the implementation of chosen wishes (i.e. goals or intentions) to help get started with goal-directed behaviors (preaction phase), monitoring goal-directed behaviors to bring them to a successful ending (action phase), and evaluating what has been achieved as compared to what was desired to terminate goal pursuit or to restart

it (evaluation phase). People decide to “cross the Rubicon” (i.e. move from the predecision phase to the preaction phase) when they sense that the feasibility and desirability of a wish is not only acceptably high, but has been exhaustively deliberated and correctly assessed. Gollwitzer, Heckhausen, & Ratajczak (1989) observed that undecided people more readily formed goals when they had been asked to judge the likelihood of wish fulfillment and to list likely positive and negative, short-term and long-term consequences. In addition, when undecided people were lured into planning the implementation of the wish by simply connecting anticipated opportunities with intended goal-directed behaviors, they also showed a greater readiness to cross the Rubicon. Apparently, when undecided people feel that the task of assessing the feasibility and desirability of a given wish is completed, they show a greater readiness to move on and set themselves the respective goal.

A recent theory on fantasy realization (Oettingen, 1996) analyzes goal setting by delineating different routes to goal formation. The theory distinguishes between two forms of thinking about the future, expectations and free fantasies. Expectations are judgments of the likelihood that a certain future behavior or outcome will occur. Free fantasies about the future, to the contrary, are thoughts and images of future behaviors or outcomes in the mind's eye, independent of the likelihoods that these events will actually occur. For example, despite perceiving low chances of successfully resolving a conflict with a partner, people can indulge in positive fantasies of harmony.

Fantasy realization theory specifies three routes to goal setting which result from how people deal with their fantasies about the future. One route is expectancy based, while the other two are independent of expectations. The expectancy based route rests on mentally contrasting positive fantasies about the future with negative aspects of impeding reality. This mental contrast ties free fantasies about the future to the here and now. Consequently, the desired future appears as something that must be achieved and the impeding reality as something that must be changed. The resulting necessity to act raises the question: can reality be altered to match fantasy? The answer is given by the subjective expectation of successfully attaining fantasy in reality. Accordingly, mental contrasting of positive fantasies about the future with negative aspects of the impeding reality causes expectations of success to become activated and used. If expectations of success are high, a person will commit herself to fantasy attainment; if expectations of success are low, a person will refrain.

The second route to goal setting stems from merely indulging in positive fantasies about the desired future, thereby disregarding impeding reality. This indulgence seduces one to consummate and consume the desired future envisioned in the mind's eye. Accordingly, no necessity to act is experienced and relevant expectations of success are not activated and used. Commitment to act towards fantasy fulfillment reflects solely the pull of the desired events imagined in one's fantasies. It is moderate and independent of a person's perceived chances of success (i.e. expectations). As a consequence, the level of goal commitment is either too high (when expectations are low) or too low (when expectations are high).

The third route is based on merely dwelling on the negative aspects of impeding reality, thereby disregarding positive fantasies about the future. Again, no necessity to act is experienced, this time because nothing points to a direction in which to act. Expectations of success are not activated and used. Commitment to act merely reflects the push of the negative aspects of impeding reality. Similar to indulgence in positive fantasies about the

future, dwelling on the negative reality leads to a moderate, expectancy independent level of commitment, which is either too high (when expectations are low) or too low (when expectations are high).

Fantasy realization theory is supported by various experimental studies. In one study (Oettingen, in press-a, Study 1) participants were confronted with an interpersonal opportunity: getting to know an attractive person. Female participants first judged the probability of successfully getting to know an attractive male doctoral student, whose picture they saw. Participants then generated positive aspects of getting to know the attractive man (e.g. love, friendship) and negative aspects of impeding reality (e.g. being shy, his potential disinterest). They were then divided into three groups for elaboration of these aspects. In the fantasy–reality contrast group, participants mentally elaborated both positive aspects of getting to know the man and negative aspects of reality standing in the way; this was done in alternating order beginning with a positive aspect. In the positive fantasy group, participants mentally elaborated only positive aspects of getting to know the man; and in the negative reality group, participants mentally elaborated only negative aspects of impeding reality.

In the fantasy–reality contrast group, goal commitment (assessed as eagerness to get to know the person and anticipated frustration in case of failure) was strictly dependent on participants' expectations, while in the positive fantasy and the negative reality groups, expectations had no effects on goal commitment. Whether expectations were low or high, goal commitment was at a medium level. Apparently, mental contrasting makes people set themselves binding goals when expectations of success are high, and it makes people refrain from goal setting when expectations of success are low. Indulging in positive fantasies and ruminating about impeding reality, to the contrary, cause goal commitment to be weakly pulled by the positive future or pushed by the negative reality, respectively.

A further experiment (Oettingen, in press-a, Study 2) with childless female doctoral students dealt with the emergence of the goal to combine work and family life. Again, mental contrasting of positive fantasies about the future with negative aspects of impeding reality made expectations determine goal commitment (assessed as anticipated frustration in case of failure, intended effort expenditure, and planning goal implementation via process simulations; Taylor, Pham, Rivkin, & Armor, 1998). Goal commitment was mild and unaffected by expectations in participants who had indulged in positive fantasies or who had dwelled on the negative reality. In both experiments only contrasting participants behaved rationally in the sense that their expectations of success determined their level of commitment. Fantasizing and ruminating participants behaved irrationally. Their level of commitment was either too high (when expectations of success were low) or too low (when expectations of success were high). A series of further experiments (Oettingen, in press-b) using various fantasy themes related to personality development (e.g. academic achievement, conflict resolution, emotional and financial independence, occupational success) and different experimental paradigms to induce the three modes of self-regulatory thought (i.e. mental contrasting, indulging in positive fantasies about the future, dwelling on impeding reality) replicated this pattern of results. Taken together, the experimental findings suggest that whether people arrive at goal commitment in a rational (expectancy based) or irrational (expectancy independent) manner depends on how they mentally deal with a desired future.

Reflexive processes So far we have discussed goal setting as a reflective process. People think about potential goals in different ways, and based on these reflections they either choose a goal or refrain from doing so. However, goals may become activated outside of awareness (Bargh, 1990). Bargh's automotive theory suggests that strong mental links develop between the cognitive representation of situations and the goals the individual chronically pursues within them. As a consequence of repeated and consistent pairing, these goals are activated automatically when the person enters the critical situation. The automatically activated goal then guides behavior within the situation without choice or intention. Reflective choice, originally crucial, is now by-passed.

Bargh, Gollwitzer, Lee Chai, and Barndollar (1999) tested the assumption of direct goal activation in several experiments by assessing whether directly activated goals lead to the same behavioral consequences as reflectively set goals. Indeed, nonconscious priming of an achievement goal caused participants to perform better on an intellectual task than a non-primed control group. Moreover, nonconsciously primed achievement goals led to increased persistence and a higher frequency of task resumption. By applying a dissociation paradigm it could be ruled out that these effects were based on the mere priming of the semantic concept of achievement.

The processes described by Bargh and colleagues are based on reflective goal setting at an earlier point in time. Automatization relates only to the activation of a set goal in a given situation. It seems possible, however, that goal-directed behavior can occur in the absence of previously or ad hoc set goals. As noted in the introduction, behaviorist research has shown that conscious goal setting or the nonconscious activation of the representation of a goal are not needed to produce behavior that carries features of goal-directedness. Such behavior can also be produced by applying principles of operant conditioning.

The idea that goal-directed behavior can be reflexively elicited is supported by recent work in the area of motor control that adheres to dynamic systems theorizing (Kelso, 1995). This work suggests that complex goal-directed behaviors can emerge without mental representations of goals. Moreover, robotics research (Brooks, 1991; Maes, 1994) finds that robots can be programmed to perform rather complex, goal-directed like behaviors without having to install goal concepts. Connectionist theorizing is also wary of the goal concept. Some connectionist theories completely abolish the goal concept, while others try to replace the reflective processes of goal choice by suggesting parallel constraint satisfaction models (Read, Vanman, & Miller, 1997).

Finally, Carver & Scheier (1999) point out that there might be two kinds of goal related automaticity. The first is described by Bargh (1990) in his automotive model and relates to automatization through repeated and consistent pairing of a goal with a situational context. The second relates to primitive built-in behavioral tendencies that are present also in nonhuman species. Carver and Scheier describe this type of automaticity as an intuitive, crudely differentiated "quick and dirty" way of responding to reality that provides a default response. One does not wait to form an intention, but acts immediately. This mode of responding reminds of what McClelland and his colleagues (McClelland, Koestner, & Weinberger, 1989) describe as behavior based on implicit motives. Implicit motives are believed to be biologically based, directly guiding behavior through natural incentives.

We have pointed to these reflexive origins of goal-directed behavior to make the reader aware that (as behaviorists have long asserted) behaviors carrying features of goal-directedness

do not necessarily require subjective goal setting based on reflective thought or the activation of a mental representation of an existing goal. Although some theorists may question the existence and relevance of reflective goal setting or the mental representation of goals, a more challenging research question for the future is how the two (reflective and reflexive) systems interact.

Goal Striving

Determinants of goal striving

Goal contents vary in structural features. They may be challenging or modest, specific or vague, abstract or concrete, proximal or distal, framed with a negative or positive outcome focus, and so forth. As well, goals differ thematically. All of these differences affect the success of goal striving.

Locke & Latham (1990) demonstrated that challenging goals spelled out in specific terms are superior to modest specific goals, as well as to challenging but vague (i.e. "do your best") goals in facilitating goal attainment. This effect has a number of prerequisites: frequent performance feedback, a strong goal commitment, the goal should not be too complex, and limitations in talent or situational constraints should not make goal attainment impossible. What does not seem to matter is whether goal setting is determined from outside (assigned goals), freely chosen by individuals (self-set goals), or chosen in interaction with others (participative goals). As potential mediators of the goal specificity effect Locke & Latham (1990) point to heightened persistence, focusing attention on the execution of goal-directed behaviors, a greater readiness to plan the goal pursuit, and to feedback and self-monitoring advantages.

Further structural differences between goals include time frame, outcome focus, and learning versus performance orientation. Bandura & Schunk (1981) divide the time frame of goal attainment into proximal and distal goals. Proximal goals relate to what the individual does in the present or near future, while distal goals point far into the future. Children who were weak and uninterested in mathematics pursued a program of self-directed learning (a total of 42 pages of instruction) under conditions involving either a distal goal only (42 pages in 7 sessions), or the distal goal plus proximal subgoals (6 pages per session for 7 sessions). Additional proximal goals improved the children's arithmetic scores by providing more performance feedback, thus making it easier to monitor progress in goal pursuit. However, this feedback advantage may turn into a detriment when inhibitional goals (e.g. dieting goals) are concerned, as people more readily discover failures which may cause them to give up prematurely. Indeed, Cochran & Tesser (1996) observed that the goal proximity effect is reversed for goals framed in terms of preventing failures.

Higgins (1997) reports that goals framed with a positive outcome focus lead to task performance that is strongest when both expectations of success and the incentive value of success are high; when people hold goals with a negative outcome focus this effect is less pronounced. In other words, when highly desirable and feasible wishes are transferred into goals it seems wise to frame these goals with a positive outcome focus. Goals with a positive

outcome focus construe achievement as accomplishment, whereas goals with a negative outcome focus construe achievement as providing security.

Finally, learning goals and performance goals have different effects on performance (Dweck, 1996). Learning goals lead to better achievements than performance goals because the former allow for a more effective coping with failure than the latter. For people with performance goals, failure signals a lack of ability and thus cause reactions of giving up. People with learning goals, on the other hand, view set-backs as cues to focus on new strategies. Accordingly, their behavior is oriented toward mastering the causes of the set-back, ultimately furthering goal attainment. Elliot & Church (1997) have recently found that performance goals are less detrimental when they are framed as approach goals (e.g. I want to get good grades) rather than avoidance goals (e.g. I do not want to get bad grades).

With respect to the thematic contents of goals, Ryan, Sheldon, Kasser, & Deci (1996) suggest that goals of autonomy, competence, and social integration lead to greater creativity, higher cognitive flexibility, greater depth of information processing, and more effective coping with failure. These effects are mediated by an intrinsic self-regulation, as the needs of autonomy, competence, and social integration are assumed to further intrinsic goal striving. This positive kind of goal striving is contrasted with being unreflectively controlled from outside (e.g. goal assignments from authorities) or from inside (e.g. goal setting based on feelings of obligation). Ryan, et al. (1996) also discuss side effects of goal-directed actions. Goals based on autonomy, competence, and social integration needs are associated with higher well-being and life satisfaction. Kasser & Ryan (1993) observed that people with goals such as making money, becoming famous, and acquiring high status, experience a worse subjective well-being as compared to those with goals such as cultivating friendship or becoming active in communal services. This is particularly true for individuals who feel highly efficacious, implying that people who successfully implement materialistic goals are particularly at risk for low well-being.

Well-being has been analyzed in other goal content approaches as well. Emmons (1996) reports that a strong predictor of a person's well-being is the proportion of intimacy goals to the total number of goals. The proportion of achievement and power goals, however, tends to be negatively related to well-being. Moreover, highly abstract goals (e.g. getting to know people) tends to be associated with psychological distress (particularly anxiety and depression), whereas low level strivings (e.g. speak friendly to strangers) are linked to greater levels of psychological well-being, but also to more physical illness. Finally, having a high proportion of avoidance strivings (e.g. avoid being lonely, avoid being upset) is associated with suppressed positive mood, reduced life satisfaction, heightened anxiety, and weaker physical health.

Recently, Brunstein, Schultheiss, & Maier (in press) pointed out that structural features also matter in predicting well-being on the basis of goal pursuit. For instance, high commitment to a personal goal furthers life satisfaction only when the person perceives the personal goal as feasible; when feasibility is low, goal commitment reduces life satisfaction. Moreover, the positive effects of intimacy goals strongly depend on social support from significant others. The effects of goals on emotional well-being are also influenced by how well people's goals match their needs or implicit motives (McClelland, 1985). People with strong achievement and power needs, and goals of the same theme – as well as people with

strong affiliation and intimacy needs, and goals of the same theme – report higher emotional well-being than those whose needs and goals do not match.

Processes of goal striving

Experience tells us that it is often a long way from goal setting to goal attainment. Having set a goal is just a first step, usually followed by a host of implementational problems that must be successfully solved. In the section above, predictions about successful goal attainment were made on the basis of structural and thematic properties of the set goals. A process-related approach focuses on how the problems of goal pursuit are solved by the individual. To effectively solve these problems, which pertain to initiating goal-directed actions and bringing them to a successful ending, the person needs to seize opportunities to act, ward off distractions, flexibly step up efforts in the face of difficulties, by-pass barriers, compensate for failures and shortcomings, and negotiate conflicts between goals. Various theories address how the individual effectively solves these problems of goal implementation.

Implemental mindset The model of action phases (Heckhausen & Gollwitzer, 1987; Gollwitzer, 1990; Heckhausen, 1991) sees successful goal pursuit as solving a series of successive tasks: deliberating wishes (potential goals) and choosing between them, planning goal-directed actions and getting started, bringing goal pursuit to a successful end, and evaluating its outcome. The task notion implies that people can promote goal pursuit by developing the respective mindsets which facilitate task completion (Gollwitzer, 1990). Studies conducted on the mindsets associated with either deliberating between wishes (i.e. deliberative mindset) or with planning goal-directed actions (i.e. implemental mindset) support this idea.

When participants are asked to plan the implementation of a set goal, an implemental mindset with the following attributes originates (Gollwitzer & Bayer, 1999): participants become closed-minded in that they are no longer distracted by irrelevant information, while processing information related to goal implementation very effectively (e.g. information on the sequencing of actions). Moreover, desirability-related information is processed in a partial manner favoring pros over cons, and feasibility-related information is analyzed in a manner that favors illusory optimism. This optimism extends to an illusion of control over uncontrollable outcomes, and even holds for depressed individuals. Self-perception of important personal attributes (e.g. cheerfulness, smartness, social sensitivity) is strengthened, while perceived vulnerability to both controllable and uncontrollable risks is lowered (e.g. developing an addiction to prescription drugs or losing a partner to an early death, respectively). The implemental mindset favors goal attainment by helping the individual to effectively cope with classic problems of goal striving, such as becoming distracted, doubting the attractiveness of the pursued goal, or being pessimistic about its feasibility.

Planning Set goals commit an individual to attaining the specified desired future, but they do not commit the individual to when, where, and how she intends to act. Such additional commitments can be added by planning goal pursuit via implementation inten-

tions with the format of "if I encounter situation x, then I will perform the goal-directed behavior y!" Gollwitzer (1993) argued that implementation intentions are a powerful self-regulatory strategy for overcoming problems of getting started with goal-directed actions (e.g. when people are tired, absorbed with some other activity, or lost in thoughts, and thus miss good opportunities to act). In support of this hypothesis, it was observed in numerous studies (for a summary, see Gollwitzer, 1999) that difficult to reach goals benefit greatly from being furnished with implementation intentions. This effect extends to projects such as resolving important interpersonal conflicts, performing a medical self-examination, regular intake of a vitamin supplement, eating healthy foods, and doing vigorous exercise. It also holds true for people who have problems turning goals into action, such as opiate addicts under withdrawal or schizophrenic patients.

Because implementation intentions spell out links between situational cues and goal-directed behavior, it is assumed (Gollwitzer, 1993) that by forming such intentions people delegate the control of behavior to the environment, thus facilitating the initiation of goal-directed actions. The mental representations of the specified situational cues become highly activated, making these cues more accessible. Various experiments (for a summary, see Gollwitzer, 1999) demonstrate that situational cues specified in implementation intentions are more easily detected and remembered, as well as more readily attended to than comparable non-intended situations. Moreover, implementation intentions create strong associative links between mental representations of situations and actions which otherwise are achieved only through consistent and repeated pairing. As a consequence, action initiation becomes automatized. Various experiments demonstrate that the goal-directed behavior specified in implementation intentions is initiated swiftly and effortlessly in the presence of the critical situation. Moreover, the subliminal presentation of the critical situation suffices to activate cognitive concepts and knowledge relevant to the efficient initiation of the intended behavior. Finally, patients with a frontal lobe injury, who have severe deficits in the conscious and effortful control of behavior, while remaining unaffected in performing automatized behaviors, benefit greatly from forming implementation intentions.

Implementation intentions ameliorate not only problems of the initiation of goal-directed behavior, but also other problems of goal striving (Gollwitzer & Schaal, 1998). In a series of studies, implementation intentions created resistance to tempting distractions while solving tedious arithmetic problems. Moreover, set goals to escape unwanted habitual responses (i.e. stereotypical beliefs and prejudicial feelings) are more successfully attained when furnished with implementation intentions. Finally, implementation intentions can protect people from the unwanted influences of goals directly activated by situational cues (Bargh, 1990). People need only prepare themselves by setting antagonistic behavioral goals and furnish them with implementation intentions (Gollwitzer, 1999).

In summary, implementation intentions create a type of behavioral automaticity that does not originate from laborious and effortful practice. Rather, people strategically delegate their control over goal-directed behavior to anticipated, critical situational cues. This easily accessible self-regulatory strategy of forming implementation intentions can be used to increase tenacity in initiating goal-directed action. At the same time it helps to increase flexibility in escaping unwanted habits of thinking, feeling, and behaving.

There are other effective types of planning besides forming implementation intentions. Planning can be approached in a more reflective way as in mental simulations exploring

possible ways to achieving a goal. Taylor, Pham, Rivkin, & Armor, (1998) call such mental simulations process simulations. If applied repeatedly, they further goal attainment, such as achieving good grades in academic exams. Apparently, repeated mental simulations of how to achieve a goal also result in firm plans.

Action versus state orientation Competing goal pursuits are paid particular attention in Kuhl's action control theory (for a summary, see Kuhl & Beckmann, 1994). For an ordered action sequence to occur, a current guiding goal must be shielded from competing goal intentions (e.g. the goal of making a phone call from the competing intention to tidy one's desk). Kuhl calls this shielding mechanism action control and differentiates a number of control strategies, such as attention control, emotion control, and environment control. Through environment control, for example, the individual prevents the derailing of an ongoing goal pursuit by removing competing temptations from the situation.

Whether and how effectively these strategies are used depends on the current control mode of the individual. An action-oriented person concentrates on planning and initiating of goal-directed action, responds flexibly to situational demands, and uses control strategies effectively. A state-oriented person, in contrast, cannot disengage from incomplete goals and is caught up in uncontrollable perseveration of thoughts related to aversive experiences or in dysfunctional thoughts about future successes. Action and state orientation may be induced by situational variables (e.g. a surprising event, persistent failure), but is founded in personal disposition.

Recent experimental research on state orientation has discovered a further volitional handicap. State-oriented individuals readily misperceive assigned goals as self-generated. These findings have stimulated a new theoretical perspective (Kuhl, in press) which sees the volitional control of action as a result of the cooperation of various mental subsystems (i.e. intention memory, extension memory, intuitive behavior control, and object recognition). Action versus state orientation is understood as a parameter that modulates the cooperation between these systems thus leading to different kinds of volitional control of action with different outcomes.

Resumption of disrupted goal pursuit Higher order goals (e.g. to become popular) offer multiple routes to approach them. If one pathway is blocked, an individual can approach the goal another way. Self-completion theory (Wicklund & Gollwitzer, 1982) addresses this issue of compensation by analyzing self-defining goals. Such goals specify as the desired end state an identity, such as scientist, mother, or a political liberal. As many different things indicate the possession of such identities, the striving for an identity is a process of collecting these indicators (or self-defining symbols). These indicators extend from relevant material symbols (e.g. for a scientist, books and awards) to relevant self-descriptions (e.g. using titles) and performances (e.g. accomplishing important research). Whenever shortcomings in one type of symbol are encountered, an individual will experience self-definitional incompleteness, which leads to compensatory self-symbolizing efforts. These may take the form of pointing to the possession of alternative symbols or acquiring new symbols.

This compensation principle has been supported with various self-defining goals and different types of symbols (for a summary, see Gollwitzer & Kirchhof, 1998). Easily acces-

sible symbols (e.g. self-descriptions) are powerful substitutes for symbols that are harder to come by (e.g. relevant performances). Newcomers to a field of interest (e.g. science) can thus symbolize the related identity without full command of the relevant performances. Further, elderly people do not have to leave the field when age related deficits hamper performance. Research on self-completion has discovered that effective self-symbolizing requires a social reality. Compensatory efforts are particularly effective when other people notice them. This, however, has costs. Compensating individuals see others only in terms of their capability to notice compensatory efforts and thus lack social sensitivity. Also, when people make public their intention to acquire a certain self-definitional indicator (e.g. studying hard), actual effort will be reduced, as the proclamation alone produces self-definitional completeness (Gollwitzer, Bayer, Scherer, & Seifert, in press).

Finally, self-completion theory may sound similar to Steele's (1988) self-affirmation theory, but self-completion is a goal theory, not a self-esteem theory (for a different view, see Tesser, Martin, & Cornell, 1996). According to Steele, anything that makes you feel good will reaffirm a weakened self-esteem. Self-completion theory, however, postulates that self-definitional incompleteness can only be substituted for by acquiring an alternative but related symbol. Recent research demonstrates that merely reaffirming self-esteem cannot produce self-definitional completeness (Gollwitzer, et al., in press).

Mobilization of effort People may promote goal achievement by compensating for failures but they also try to avoid committing errors in the first place. Warding off failure becomes a pressing issue whenever difficulties mount. Brehm & Wright's (Brehm & Self, 1989; Wright, 1996) energization theory of motivation assumes that the readiness to exert effort is directly determined by the perceived difficulty of a task. As perceived difficulty increases, so does effort expenditure, unless the task is recognized to be unsolvable. There is, however, a second limit to the increase of effort in response to heightened task difficulty: potential motivation. Potential motivation is fed by need related variables (i.e. strength of the related need or higher order goal, the incentive value of the task, and the instrumentality of task completion for satisfaction or attainment). If potential motivation is low, people do not find it worthwhile to expend more effort when an easy task becomes more difficult. The upper limit of effort expenditure is low and quickly reached. If potential motivation is high, however, an increase in difficulty is matched by investment of effort up to high levels of difficulty. The upper limit of effort expenditure is high and is reached only after much effort expenditure has occurred.

Empirical tests of the theory have varied potential motivation either by offering high or low rewards for task completion or making a high reward more or less likely. Effort mobilization is usually assessed by cardiovascular responses (i.e. heart rate and systolic blood pressure). In general, low potential motivation curbs the linear relationship between task difficulty and effort. Recent research uses energization theory to understand the differences between men and women in effort on sex-typed tasks, and to explore the effects of private versus public performance conditions on effort (Wright, Tunstall, Williams, Goodwin, & Harmon-Jones, 1995; Wright, Murray, Storey, & Williams, 1997).

Discrepancy reduction The goal striving theories discussed so far implicitly or explicitly view goals as something attractive that the individual wants to attain. Goals are not simply

“cold” mental representations that specify standards or reference points, but are cognitively explicated and elaborated incentives. Such motivational goal theories are rivaled by a more cognitive view that sees goals as specifying performance standards. According to Bandura (1997), goals have no motivational consequences per se. They only specify the conditions that allow a positive or negative self-evaluation. If the set goal is attained, positive self-evaluation prevails, whereas staying below one’s goal leads to negative self-evaluation. The individual is pushed by the negative self-evaluation associated with the discrepancy, and pulled by the anticipated positive self-evaluation linked to closing the gap between the status quo and the goal. Accordingly, goals stimulate effortful action only when people notice a discrepancy between the status quo and the set goal. Bandura proposes frequent feedback as a powerful measure to stimulate goal pursuit. However, people will try to reduce a discrepancy only when they feel self-efficacious with respect to goal-directed actions.

Carver & Scheier (1998) propose a different discrepancy reduction theory of goal pursuit. Based on cybernetic control theory, the central concept of their analysis is the negative feedback loop. Carver and Scheier highlight goal pursuits’ hierarchical structure and assume a cascading loop structure. Goal-directed behavior is regulated at the middle level (“Do-goals”) with actions at higher levels (“Be-goals”) suspended until the individual becomes self-aware. Discovery of discrepancies on the “Be-level” or the “Do-level” triggers lower level goals or behaviors aimed at discrepancy reduction, respectively. An individual tries to close discrepancies only when outcome expectations are high. However, a positive affective response as a consequence of goal attainment is not assumed, nor is the detection of a discrepancy associated with negative affect. Rather, the source of positive or negative feelings in goal pursuit is the speed of discrepancy reduction. The intensity of these feelings is regulated again in a negative feedback loop. If the speed meets a set criterion, positive feelings result, whereas negative feelings are experienced with speeds that stay below this criterion.

The discrepancy notions discussed above construe goals as “cold” mental representations of performance standards with no links to needs or incentives. This conceptualization of goals makes it difficult to explain why motivation (see Brehm and Wright’s notion of potential motivation) moderates the relation between task difficulty and effort. Moreover, according to discrepancy theory an increase in task difficulty should reduce efforts at task completion, because an experienced increase in task difficulty should lead to reduced self-efficacy and less positive outcome expectations. As Brehm and Wright have repeatedly demonstrated, however, high potential motivation makes it worthwhile for people to mobilize additional effort whenever heightened task difficulty threatens task completion. Finally, Carver and Scheier’s construal of the regulation of the speed of discrepancy reduction assumes that positive discrepancies (i.e. moving towards the goal too fast) are reduced as readily as negative discrepancies (i.e. moving towards the goal too slowly). However, from the perspective that goals represent a desired outcome, a person should be less motivated to reduce positive discrepancies than negative discrepancies (Gollwitzer & Rohloff, 1999).

Prospects of Future Research on Goals

Although research on the determinants and processes of goal setting and goal striving has won momentum in recent years, there are goal related phenomena that have not yet received much theoretical and empirical attention. One is the issue of goal conflict. For instance, future research will have to discover how conflicting goals emerge. Answers may come from an analysis of when and how fantasies about a desired future originate. Such visions should be a product of a person's cultural context and the needs, values, attitudes, and interests the person has developed within it. Moreover, whether a person is willing to transfer these fantasies into binding goals should depend on whether the person is ready to contrast her fantasies with reality; again, this mode of self-regulatory thought about the future may have cultural underpinnings (Oettingen, 1997).

Once set goals are in conflict, these conflicts have to be resolved. Emmons (1996) points to the possibility of creative integrations, where new goals are formed which serve both of the conflicting goals (e.g. agentic and communal strivings are reconciled by taking on communal responsibilities). Moreover, Cantor & Fleeson (1994) argue that to meet higher order life tasks (e.g. graduating from college) people can strategically link behavioral goals that apparently conflict (e.g. the conflict between studying and being with other people is reconciled by studying in a group). But more often than not, conflicts can only be resolved by giving up one goal. This raises the question of when and how people most effectively disengage from goals. Although Klinger (1977) has offered a stage theory of disengagement from incentives, systematic research on disengagement from set goals is still missing. Simply ruminating about the impediments of attaining the goal should not suffice (Martin & Tesser, 1996; Oettingen, 1996). Rather, people's low expectations of success need to be activated and used to foster active disengagement, and this becomes more likely when the desired future is mentally contrasted with negative aspects of impeding reality.

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