Treue S, Hol K, Rauber H J 2000 Seeing multiple directions of motion-physiology and psychophysics. *Nature Neuroscience* 3: 270–6

Treue S, Martinez Trujillo J C 1999 Feature-based attention influences motion processing gain in macaque visual cortex. *Nature* 399: 575–9

van Santen J P, Sperling G 1985 Elaborated Reichardt detectors. *Journal of the Optical Society of America A* 2: 300–21

Wallach H, O'Connell D N 1953 The kinetic depth effect. *The Quarterly Journal of Experimental Psychology* 45: 205–17

Wertheimer M 1912 Experimentelle Studien über das Sehen von Beuegung. *Zeitschrift für Psychologie* 61: 161–265

Xiao D K, Marcar V L, Raiguel S E, Orban G A 1997 Selectivity of macaque MT/V5 neurons for surface orientation in depth specified by motion. *European Journal of Neuroscience* 9: 956–64

Zihl J, von Cramon D, Mai N 1983 Selective disturbance of movement vision after bilateral brain damage. *Brain* 106: 313–40

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Motivation and Actions, Psychology of

Three sets of phenomena have traditionally been of concern for research on motivation and action: (a) the selection of a certain course of action, (b) its energization, and (c) its regulation. Taking this comprehensive perspective, many different kinds of behavior (e.g., helping others, aggression, intergroup relations, achievement) can be analyzed from a motivational viewpoint. In the following sections, selected concepts are discussed that characterize present-day research on motivation: (a) motives and needs, (b) expectations, attributions, and control beliefs, and (c) goal setting and goal striving.

1. Motives and Needs

McClelland (1985) distinguished three basic groups of motives: the achievement motive, the power motive, and the affiliative motives. As food is the reward or incentive for hunger, so is improving one's performance on a given task the incentive for the achievement motive. The incentive of the power motive is having impact, control, or influence over another person, a group, or the world at large. Finally, the incentives for the affiliative motives extend to sexual pleasures (sexual motive), being together with people (need for affiliation), and experiencing harmony, concern, and commitment (intimacy motive). All of these motives may entail a fear or avoidance component. Trying to meet a standard of excellence may not be motivated solely by hope for success, but also by fear of failure, and spending one's spare time affiliating with others may not be determined solely by the anticipated positive feelings of togetherness, but also by strong fear of rejection.

In principle, all humans share these various motives, although with different strengths. Motive strength can be assessed by exploring both the array of situations a person interprets in terms of a given motive (e.g., a person high in need for power interprets all kinds of situations as power-related) and the intensity of the anticipated affect associated with having acquired respective incentives. Commonly this is done with the Thematic Apperception Test (TAT) which contains pictures of scenes loosely related to the motive measured. Recent research has linked the activation of different motives to different hormonal responses that in turn facilitate motive-specific behaviors (McClelland 1995).

Scoring high on a certain motive implies a recurrent concern for acquiring the respective incentives. For instance, people high on the affiliation motive perform affiliative acts frequently and energetically, readily perceive affiliative cues in the environment, and quickly detect affiliative networks. Also, predictions of the professional success of managers are strikingly accurate, particularly if one considers the motive dispositions in achievement (high), power (high), and affiliation (low) in concert. However, attempts to predict behaviors from motives commonly fail when engagement in these behaviors is based on conscious reflection. When it comes to choosing between courses of action, tasks of different difficulty, or persisting on a given task versus leaving the field, people deliberate on the feasibility and desirability of the alternative courses of action.

2. Expectations, Attributions, and Control Beliefs

One of the first attempts to integrate cognitive aspects of motivation was made by Atkinson (1957) in his risk-taking model. He proposed that the subjective probability of success and the task's incentive value conjointly affect task choice, both variables being influenced by the perceived difficulty of the task. Whereas easy tasks lead to a high subjective probability of success (direct function), they also possess low incentive value (inverse function) because the anticipated affect associated with success (pride) is lowest for easy tasks. The reverse is assumed for difficult tasks. Atkinson suggested that multiplying probability of success and incentive value will give a good estimate of whether a person will choose to work on a task, especially when the obtained score is weighted by the approach (hope for success) and avoidance (fear of failure) components of the person's achievement motive. Research supports the model for predictions on task choice, but the model fails to account for the quantity and quality of task performance once people have started to work on the

chosen tasks (see *Group Decision Making, Social Psychology of*).

Elaborations of the model (Heckhausen 1991) added further expectation-related concepts (e.g., the expectation that successful task performance will lead to the anticipated incentives) and differentiated various incentives (e.g., extrinsic side effects, such as when an achievement task has affiliative benefits). Atkinson's model has also been elaborated by attribution theorists (Weiner 1992) who attempted to understand changes in expectations and incentive value in terms of the attributions made for past performances. Moreover, Weiner discovered that the approach component of the achievement motive (hope for success) is associated with attributing failure to luck or lack of effort and success to ability, whereas the avoidance component is linked to attributing failure to lack of ability and success to luck (see *Academic Achievement Motivation, Development of*).

Recognition of the motivational importance of expectations and attributions was the starting point of the cognitive revolution in the psychology of motivation which also has introduced the concept of control beliefs. Self-efficacious individuals hold the firm belief that they possess the potential to execute the kinds of behaviors that a given task demands (Bandura 1997). People acquire this belief by reflecting on their own relevant past behaviors, observing the behaviors of similar others, being evaluated by significant others (e.g., teachers), and observing their own physiological reactions when challenged by a given task. High self-efficacy beliefs are associated with choosing aspiring goals, exerting strong efforts to attain these goals, and persisting in the face of obstacles and hindrances (see *Control Behavior: Psychological Perspectives*).

3. Goal Setting

The most recent advance in the psychology of motivation and action is research on goal pursuit. Research on goals addresses the question of how well people translate their desires and beliefs into action.

3.1 Determinants of Goal Setting

Research on the determinants of goal setting discovered that people differ in their preference for setting goals with certain structural features or contents. For example, people who generally think about their actions in concrete versus abstract terms also prefer to set themselves concrete versus abstract goals, respectively. People who construe their self as an ideal (which they intrinsically desire to attain) set promotion goals (i.e., goals focusing on accomplishments and aspirations), whereas people who construe their self as an ought which they feel compelled to reach set prevention goals (i.e., goals that focus on safety and responsibilities, Higgins 1997). It also matters what

kind of implicit theories people hold on the nature of personal attributes. If people believe that ability is fixed and cannot easily be changed, they choose performance goals (i.e., goals that serve the purpose of finding out how capable one is). If, however, people believe that ability can be improved, they choose learning goals geared at finding out how one can successfully carry out the task at hand (Dweck 1999). People's needs, wishes, and higher order goals also influence the type of goals that are set (Ryan et al. 1996). Moreover, people's concept of what they could possibly become (i.e., the possible self) provides thematic conceptions of what future selves they may strive for.

3.2 Processes of Goal Setting

Recent research (Oettingen 2000) demonstrates that the perceived feasibility of goal attainment does not always determine people's goal setting. When people fantasize about a desired future, they set themselves goals independent of perceived feasibility. Thus people who indulge in fantasies about a desired future commit themselves to goals irrationally: they are too committed when probabilities of success are low, and not committed enough when probabilities of success are high. Such irrational goal commitments are also observed with people who are caught up in ruminations about aspects of the present reality that stand in the way of reaching one's fantasies. Only when people mentally contrast their positive fantasies with present reality does their goal setting reflect perceived feasibility. Strong goal commitments emerge when perceived feasibility is high, and no goal commitment is found when perceived feasibility is low.

Goals may also become activated outside of awareness (Bargh and Chartrand 1999). Strong mental links develop between the cognitive representations of situations and the goals that people chronically pursue within these situations. As a consequence of this repeated and consistent pairing in the past, such goals become automatically activated when the person enters the relevant situation. The automatically activated goal then guides behavior, without the individual choosing or intending the respective goal-directed line of action (see *Automaticity of Action, Psychology of*).

4. Goal Striving

4.1 Goal Content Effects

Successful goal striving is determined by how goals are framed and what contents they specify. The following structural features of goals are important: challenging goals that are spelled out in specific terms lead to a higher attainment rate than modest specific goals or challenging but vague ('Do your best!') goals. Proximal goals that relate to what the individual does in the near

present or will do in the future are superior to distal goals that point far into the future. *Promotion goals* geared at accomplishment facilitate goal pursuit, whereas *prevention goals* geared at acquiring security hamper goal pursuit. Learning goals lead to better performances than performance goals, as the former allow for a more effective coping with failure than the latter. Performance goals are less detrimental, however, when they are framed as approach goals (e.g., I want to get good grades) as compared to avoidance goals (e.g., I do not want to get bad grades).

Moreover, the thematic content of goals matters. Goals covering issues of autonomy, competence, and social integration are said to further intrinsic goal pursuit which in turn promotes creativity, higher cognitive flexibility, and greater depth of information processing. Side-effects of intrinsic goal pursuits are an increased subjective well-being and life satisfaction (see *Intrinsic Motivation, Psychology of*). Effects of goals on subjective well-being are also influenced by how well people's goal contents match the strengths of their motives of achievement, affiliation, power, and intimacy (Brunstein et al. 1998).

Other parameters of goal content and goal structure have also been found to relate to subjective well-being. Strong goal commitment, for instance, favors subjective well-being, but only when the probability of success is perceived as high. The strongest predictor of positive well-being is the proportion of intimacy goals in the total of personal goals a person holds, whereas the proportion of achievement and power goals tends to be related to negative well-being. However, the strength of these effects seems to be contingent on positive and negative life events in domains relevant to these goals. Moreover, the level of goal specification also affects subjective well-being. High-level goals (e.g., bring happiness to those around me) tend to be associated with psychological distress (anxiety, depression). Low-level goals (e.g., get along with my brother) on the other hand, have been linked to greater levels of psychological well-being, but also to more physical illness. A high proportion of avoidance goals (e.g., not being late) as compared to approach goals (e.g., being on time) impedes psychological and physical well-being. Finally, a lack of integration of the many goals people hold in terms of experiencing much goal conflict or a strong fragmentation of the self has also been linked to low subjective well-being (Emmons 1996).

4.2 Planning

Having set a goal is just a first step toward goal attainment, commonly followed by a host of implemental problems that need to be solved. Research on implemental mind-sets (Gollwitzer 1990) has shown that planning the implementation of a set goal creates a cognitive orientation that facilitates getting started with goal-directed actions. Implemental mind-

sets prevent distraction by irrelevant information and promote processing of information related to the implementation of set goals. Moreover, desirability-related information is processed partially, favoring pros over cons, and the analysis of feasibility-related information is optimistic.

Set goals commit people to attaining the specified future (outcome or behavior), but they do not commit people to when, where, and how they want to attain it. Planning one's goal pursuit via forming implementation intentions that take the form of 'If I encounter situation x, I will perform the goal-directed behavior y' (Gollwitzer 1999) promote the attainment of difficult to reach goals (e.g., healthy eating). As implementation intentions spell out links between situational cues and goal-directed behavior, the control of goal-directed behavior is delegated to environmental cues (e.g., good opportunities). The situational cues specified in implementation intentions are more easily detected, remembered, and more readily attended to than comparable nonintended situations. The goal-directed behavior specified in implementation intentions is initiated immediately and effortlessly in the presence of the critical situational cues, without necessitating a conscious intent. The task of planning can also be approached in a more reflective way, however, as is entailed in mental simulations that explore possible routes to achieving one's goal (process simulations, Taylor et al. 1998). If such process simulations are applied repeatedly, they further the attainment of set goals.

4.3 Action Control Strategies

Successful goal attainment implies that a currently pursued goal has to be shielded from competing goals (e.g., the goal of making a phone call from the competing goal of tidying up one's messy desk). Various control strategies can be differentiated (Kuhl and Beckmann 1994), such as attention control or emotion control. Whether and how effectively these strategies are used depends on the control mode of the individual. An action-oriented person concentrates on the planning and initiation of goal-directed action; responds flexibly to contextual demands; and uses control strategies effectively. A state-oriented person, however, cannot disengage from incomplete goals and is thus caught up in persevering thoughts related to aversive experiences or future successes. Also, state-oriented individuals readily misperceive assigned goals as self-generated, and the degree of such false self-ascriptions is closely associated with reduced enactment of self-chosen as compared to assigned goals.

Successfully resolving goal conflicts is not only an issue of shielding an ongoing goal pursuit from competing goal pursuits (Cantor and Fleeson 1994). There is also the possibility of creative integrations, where new goals are formed which serve both of the conflicting goals (e.g., affiliation and achievement

goals can be reconciled by taking on civic responsibility). Moreover, in an attempt to meet higher order goals (e.g., graduating from high school) people can strategically link behavioral goals that on the surface appear in conflict (e.g., when affiliating with people and studying are reconciled by studying in groups).

4.4 Mobilization of Effort

People can secure goal attainment not only by planning and shielding off distractions, but also by increasing effort. A person's readiness to exert effort turns out to be directly determined by the perceived difficulty of the task at hand (Wright 1996). As the perceived difficulty increases so does the person's effort expenditure, unless the task is recognized as unsolvable. But there is a second limit to the linear increase of effort expenditure in response to heightened task difficulty: a person's potential motivation.

Potential motivation is determined 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 need satisfaction or attainment of the higher order goal). If the level of potential motivation is low, people do not find it worthwhile to increase effort when an easy task becomes more difficult. This is because the upper limit of effort expenditure (suggested by the potential motivation) is low and thus reached quickly.

4.5 Discrepancy Reduction

Even when failure occurs people do not give up on their goal pursuits. Rather, they experience a discrepancy that needs to be closed. According to Bandura (1997), goals only specify the conditions that allow for a positive or negative self-evaluation. If the set goal is attained through one's actions, a positive self-evaluation prevails; whereas staying below one's goals leads to a negative self-evaluation. The individual thus is seen as pushed by the negative self-evaluation associated with the discrepancy, and pulled by the anticipated positive self-evaluation that is intrinsically linked to closing the gap between the status quo and the goal (i.e., the performance standard). This implies that goals stimulate effortful action toward goal attainment only when people recognize a discrepancy between the status quo and the set goal. Bandura therefore proposes giving frequent feedback as a powerful means of stimulating goal pursuit.

Carver and Scheier (1998) propose a different discrepancy reduction theory of goal pursuit. Based on cybernetic control theory, the central conceptual unit of their analysis is the negative feedback loop. Carver and Scheier highlight the hierarchical organization of goal pursuit and thus assume a cascading loop structure. Goal-directed behavior is usually regulated at the middle level ('Do-goals') with action at higher levels ('Be-goals') suspended until the individual becomes self-aware. When discrepancies on the 'Be-level' or the 'Do-level' are discovered, lower level goals or behaviors geared at discrepancy reduction are triggered. A positive affective response as a consequence of goal attainment is not assumed, nor is the detection of a discrepancy assumed to be associated with negative affect. Rather, the speed of progress in discrepancy reduction is seen as the source of positive or negative feelings.

Research on identity goals demonstrates, however, that people do not necessarily have to move downwards (i.e., to lower level goals) when trying to close goal discrepancies. When it comes to 'Be-goals' that specify a desired identity (such as being a good scientist) there are many different, alternative ways to indicate to oneself and others that one possesses the aspired identity. If one has failed to attain an indicator or has discovered that an indicator is out of reach (e.g., having productive students), one can compensate by striving for alternative indicators (e.g., presence at conferences).

5. Conclusion and Future Perspectives

Research on motivation and action traditionally focused on identifying the determinants of motivation. This search has moved from the affective determinants of motives, needs, and incentives to more cognitive determinants, such as expectations, attributions, and control beliefs. With the recent focus on goals (Gollwitzer and Bargh 1996), the volitional issue of the regulation of goal-directed behavior has become prevalent, and the human being is conceived as a flexible strategist. This perspective leads to a focus on the analysis of reflective and reflexive psychological processes that guide the successful setting and implementing of goals (see *Self-regulation in Adulthood*).

Even though research on goals has won momentum in recent years, there is a host of issues that have not yet received much theoretical and empirical attention. One of these is the issue of goal conflict. Future research will have to discover how goal conflicts emerge and how they affect thoughts, feelings, and actions. Moreover, different ways of resolving goal conflicts (e.g., creative integrations versus disengagement from one of the conflicting goals) need to be distinguished. It does not suffice to simply analyze the determinants and consequences of goal conflict resolution. Observing that disengagement from goals is triggered, for instance, by a lack of opportunities to pursue the goal, or observing that any disengagement from goals is accompanied by ruminative thought as well as frustrated and depressed affect (Klinger 1975), is an important first step. The next question is, How can people effectively self-regulate disengagement from goals. As any self-regulation is taxing in the sense that subsequent self-regulation becomes less effective, research on goals will need to discover self-regulatory

strategies of goal setting, and goal implementation that are easy to perform.

See also: Academic Achievement Motivation, Development of; Action Theory: Psychological; Activity Theory: Psychological; Attitudes and Behavior; Automaticity of Action, Psychology of; Control Behavior: Psychological Perspectives; Group Decision Making, Social Psychology of; Intrinsic Motivation, Psychology of; Self-regulation in Adulthood

Bibliography

Atkinson J W 1957 Motivational determinants of risk-taking behavior. *Psychological Review* **64**: 359–72

Bandura A 1997 *Self-efficacy: The Exercise of Control*. W. H. Freeman, New York

Bargh J A, Chartrand T L 1999 The unbearable automaticity of being. *American Psychologist* **54**: 462–79

Brunstein J C, Schultheiss O C, Grässmann R 1998 Personal goals and emotional well-being: The moderating role of motive dispositions. *Journal of Personality and Social Psychology* **75**: 494–508

Cantor N, Fleeson W 1994 Social intelligence and intelligent goal pursuit: A cognitive slice of motivation. In: Spaulding W (ed.) *Nebraska Symposium on Motivation*. University of Nebraska Press, Lincoln, NE, Vol. 41, pp. 125–79

Carver C S, Scheier M F 1998 *On the Self-regulation of Behaviour*. Cambridge University Press, Cambridge, UK

Dweck C S 1999 *Self-theories. Their Role in Motivation, Personality, and Development*. Psychology Press, Philadelphia, PA

Emmons R A 1996 Striving and feeling: Personal goals and subjective well-being. In: Gollwitzer P M, Bargh J A (eds.) *The Psychology of Action: Linking Cognition and Motivation to Behavior*. Guilford Press, New York, pp. 313–37

Gollwitzer P M 1990 Action phases and mind-sets. In: Higgins E T, Sorrentino E M (eds.) *Handbook of Motivation and Cognition: Foundations of Social Behavior*. Guilford Press, New York, Vol. 2, pp. 53–92

Gollwitzer P M 1999 Implementation intentions: Strong effects of simple plans. *American Psychologist* **54**: 493–503

Gollwitzer P M, Bargh J A 1996 *The Psychology of Action: Linking Cognition and Motivation to Action*. Guilford Press, New York

Heckhausen H 1991 *Motivation and Action*. Springer-Verlag, Berlin

Higgins E T 1997 Beyond pleasure and pain. *American Psychologist* **52**: 1280–1300

Klinger E 1975 Consequences of commitment to and disengagement from incentives. *Psychological Review* **82**: 1–25

Kuhl J, Beckmann J 1994 *Volition and Personality: Action versus State Orientation*. Hogrefe & Huber, Seattle, WA

McClelland D 1985 *Human Motivation*. Scott, Foresman, Glenview, IL

McClelland D 1995 Achievement motivation in relation to achievement-related recall, performance, and urine flow, a marker associated with release of vasopressin. *Motivation and Emotion* **19**: 59–76

Oettingen G 2000 Expectancy effects on behavior depend on self-regulatory thought. *Social Cognition* **18**: 101–29

Ryan R M, Sheldon K M, Kasser T M, Deci E L 1996 All goals are not created equal: An organismic perspective on the nature of goals and their regulation. In: Gollwitzer P M, Bargh J A (eds.) *The Psychology of Action: Linking Cognition and Motivation to Behavior*. Guilford Press, New York, pp. 7–26

Taylor S E, Pham L B, Rivkin I D, Armor D A 1998 Harnessing the imagination: Mental simulation, self-regulation, and coping. *American Psychologist* **53**: 429–39

Weiner B 1992 *Human Motivation*. Sage, Newbury Park, CA

Wright R 1996 Brehm's theory of motivation as a model of effort and cardiovascular response. In: Gollwitzer P M, Bargh J A (eds.) *The Psychology of Action: Linking Cognition and Motivation to Behavior*. Guilford Press, New York, pp. 424–53

P. M. Gollwitzer and G. Oettingen

Motivation: History of the Concept

Evolutionary theory, the study of learning, and the psychoanalytic study of mental illness have been committed to see motivation as a primary cause of behavior, and this is also true of behavioral biology and physiological psychology, as they prefer to think in terms of homeostasis (Cofer and Appley 1964). When hunger occurs, for instance, behavior is instigated (e.g., finding and eating food) that is instrumental to rectifying the imbalance caused by tissue needs and deficits. The named theoretical perspectives have barricaded the simple insight that behavior can occur under externally applied forces as well (e.g., a shove). Even more importantly, the physical structure of the organism, its sensory and perceptual capacities, its cognitive and motor abilities, and so forth, qualify as causal factors. Even habits, once formed, can be seen as such.

Research on motivation has recognized early on that motivation can only be one of the many causes of behavior, and this extends to the causation of affect and cognition as well. Accordingly, the leading question became: What are the aspects of cognition, affect, and behavior that benefit most from a motivational analysis? Traditionally, the following issues have been addressed: First, there is the question of the facilitation and energization of certain responses. This issue has been analyzed by the classic proponents of learning theory (Hull 1943, Spence 1956) who suggested that motivational processes as such (assumed to be rooted in general drive or arousal states) do not necessarily control or guide specific forms of behavior but may at times invigorate innate or learned associative tendencies. Second, thoughts, feelings, and actions are often characterized as guided, directed, goal-oriented, persistent, or purposive. Such qualities relate to making choices, but also to short-term or long-term efforts in implementing the choices made.

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