19 Motivation and Volition in the Workplace

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19.1 Motivating Employees: A Key Variable in Organizational Psychology

Employee motivation is an important variable in the workplace. It affects performance, determines job satisfaction and commitment, and ultimately determines the success of individual employees, teams, and entire organizations. Motivation is also a strategic key variable for the competition between organizations (Steers, Mowday, & Shapiro, 2004; cf. Nink, 2014). Managing employee motivation is in fact one of the greatest challenges organizations face. Therefore, almost all organizations – by no means only larger ones – make use of all kinds of effective motivational tools. These tools include the application of goals as coordination and leadership instruments, the regular assessment of employees' commitment and satisfaction, and the employment of legions of internal and external advisers who are there to help employees overcome motivational barriers when change occurs in the workplace.

However, motivation is also a fundamental component in the construction of valid and useful theories that can be applied to the entire scope of work-related research (Steers et al., 2004). Virtually every textbook on organizational psychology, human resources, and management includes one or even several chapters on "employee motivation." At the same time, readers will find that most concepts and models discussed in textbooks about applied fields have been around since the 1960s and 1970s. Since Steers et al. (2004) bemoaned this situation, little has changed even though research on motivation in particular has undergone many new developments that are increasingly replicated in applied research and in practice. Examples include research on volition (Gollwitzer & Moskowitz, 1996; Haggard, 2008; Kuhl & Fuhrmann, 1998), the depletion of willpower (Baumeister, Muraven, & Tice, 2000; Hagger, Wood, Stiff, & Chatzisarantis, 2010), or the implicit and explicit motive systems and their resulting motive discrepancies (see Chap. 9). Other prolific developments that are clearly relevant to practice involve expanding the understanding of work motivation by exploring how individual perspectives change with time and age (see Sect. 19.4.1), gamification (see Sect. 19.4.2), or the exploration of "new" motives such as money (see Sect. 19.4.3). Finally, some scholars have recently suggested new frameworks that have been put forth in an attempt to comprehensively explain the determinants of employee motivation (see Sect. 19.3).

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The following chapter aims to introduce these new developments. For this purpose, we will concentrate on approaches that focus on the roles of motivation and volition in the workplace, rather than on approaches that merely mention them. Moreover, we will report findings from recent applied research on various constructs that have been discussed in more detail in other chapters of this volume such as goals (see Chap. 11) or intrinsic motivation (see Sect. 14.2) and flow (see Sect. 14.5). Still, we need to start our discussion by presenting the classic theories of employee motivation.

19.2 Classic Theories of Employee Motivation

A comprehensive overview of classic theories of employee motivation would require an entire monography (cf. Miner, 2015; Pinder, 2008) or its own textbook (cf. Kanfer, Chen, & Pritchard, 2012). This chapter will therefore exclude topics and approaches that include notions of motivation or work environments but do not focus on these issues and instead merely assume their relevance or use them as additional dependent or independent variables. Some of these research areas are research on leadership (Blessin & Wick, 2013; Miner, 2015; Northouse, 2015; Weibler, 2016) and approaches that address how to arrange the workplace (Hackman & Oldham, 1980; Humphrey, Nahrgang, & Morgeson, 2007), control theory (cf. Carver & Scheier, 1982, 2012), the theory of behavioral regulation (cf. Ach, 1935; Dörner & Schaub, 1994; Frese & Zapf, 1990), theories on justice (Adams, 1965) or procedural fairness (Tyler & Lind, 2002), or literature on stress and burnout (Bakker, Demerouti, & Euwema, 2005; Maslach, Schaufeli, & Leiter, 2001). Some other approaches that explicitly address motivation have been excluded because they are covered elsewhere in this volume or have received little attention in recent applied research. These topics include the hierarchy of needs (Maslow, 1943), attribution theories (cf. Kelley & Michela, 1980; Weiner, 1985), or the Rubicon model of action phases (Gollwitzer, 1990; see Chap. 12).

19.2.1 Herzberg's Two-Factor Theory

In spite of its contested validity and controversial empirical findings, no textbook on motivation in the workplace can omit Frederick Herzberg's (1966) two-factor theory. Herzberg and his colleagues rejected the traditional perspective that employees' dissatisfaction and satisfaction constitute the extremes of the same continuum. Instead, they proposed that the two dimensions are in principle independent of each other. Thus, employees can be satisfied with certain aspects ("factors"[1]) of their work while being dissatisfied with others. Herzberg called factors that, if met, make employees motivated and satisfied *motivators*. Examples include the work itself (it should be engaging and challenging), performance, acknowledgment, responsibility, and opportunities for growth and promotion. Even if these factors are not fulfilled, employees are not automatically dissatisfied. Dissatisfaction is instead caused by the absence of so-called hygiene factors such as internal company policy, supervisors' leadership style, physical work conditions, job security, and income. If hygiene factors are met but motivators are not, employees are neither satisfied nor dissatisfied. Not being dissatisfied therefore does not equal being satisfied, although both constitute positive psychological states (Sachau, 2007).

Herzberg's (Herzberg, Mausner, & Snyderman, 1959) understanding of "hygiene" mirrored the medical understanding of the term according to which good hygiene prevents illness but does not automatically make a person healthy. For the workplace, this means that not only is management required to create an appropriate framework that is defined by hygiene factors alone, but managers also need to consider motivators in order to keep their subordinates motivated (Herzberg, 1976). Herzberg (1976) put his

[1] The name "two-factor theory" might confuse some readers because it seems to suggest that there are only two factors. Motivators and hygiene factors are used in their respective plural forms to indicate that there are in fact more than just two factors in each case. The name of the theory therefore indicates "two independent groups of factors."

theory to practical use in order to popularize the notion of job enrichment. He placed a particular focus on certain motivators, stressing that organizations should guarantee that their employees have compelling work, appropriate responsibilities, and opportunities to grow and develop. Herzberg expected that such measures would increase employees' interest, sense of responsibility, and performance.

Inspired by Flanagan's (1954) critical incident technique, initial research by Herzberg and his colleagues (Herzberg et al., 1959) used semi-structured interviews to ask employees about situations in which they had felt particularly satisfied or dissatisfied. Content analyses of these responses led to a complex set of data that the authors interpreted as a confirmation of their two-factor theory. However, this interpretation has been met with considerable criticism (for an overview, see Miner, 2015). The biggest concern has been that almost all factors appeared in all narratives no matter whether the narratives expressed contentment or discontentment. Thus, they were motivators and hygiene factors at the same time. This is particularly true for the factor "income," which was mentioned with almost equal frequency in both types of stories (cf. Pinder, 2008).

Overview

Further Criticisms of the Two-Factor Theory (cf. Bockman, 1971; Miner, 2015; Pinder, 2008; Sachau, 2007)

- The original results are methodological artifacts: Stories based on semi-structured interviews generally tend to attribute negative outcomes to external factors (as depicted by hygiene factors).
- The theory cannot be tested: There are too many different versions of the core hypotheses. One variation states that all motivators together contribute more to satisfaction than to dissatisfaction, while another variation claims that all motivators together contribute more to satisfaction than all hygiene factors together. Such contradictions seem to immunize the theory against empirical examination.
- General findings on employee satisfaction do not match the prognoses: When asked, most employees indicate that they are rather satisfied and less dissatisfied. According to the two-factor theory, this should indicate that both motivators and hygiene factors are fulfilled. It seems unlikely that this is the rule.

Overall, criticism has caused researchers' initial enthusiasm in the 1970s to wane over the years and the two-factor theory to lose its relevance (cf. Judge & Church, 2000). More recently, however, some positive psychology proponents have started to express new interest in Herzberg's humanistic approach (Sachau, 2007).

Still, the two-factor theory remains very popular in practice (Latham, 2012; Miner, 2015), perhaps because it is simple and plausible. It is not difficult to imagine employees who are satisfied with certain aspects of their jobs and dissatisfied with others. Moreover, the idea that motivation can be boosted without monetary incentives or the implementation of (expensive) work conditions sounds very attractive if organizations intend to cut costs (cf. Miner, 2015). In general, Herzberg and his colleagues contributed the practice of questioning the importance of money as a motivational instrument and advanced the idea of job enrichment. Both of these aspects are compatible with current concepts in motivational psychology (cf. Sachau, 2007).

19.2.2 Vroom's VIE Theory

A critical discussion of the VIE theory (Vroom, 1964) and its precursors is presented in Chap. 5 (cf. Sect. 5.10.1 "Instrumentality Model"). Therefore, we will limit our discussion here to additional information about applied research and the practical implications of the theory in the workplace.

In the job context, the VIE theory roughly states that employees draw their “motivational energy” for their work from a combination of various cognitions: the *expectation* (E) that the action in question can be performed and realized successfully if enough effort is put into it; the *instrumentality* (I) or utility of this action for outcomes that individuals consider meaningful such as income, promotion, or health; and finally, the *valence* (V) of the outcomes, i.e., how important acting individuals consider the consequences of their actions. Determining the valence is an idiosyncratic process. The VIE theory determines the energy invested in the relevant action by the acting person by multiplying the three cognitions V, I, and E (details about the multiplication can be found in Chap. 5). Van Eerde and Thierry (1996) stressed the metaphorical understanding of “energy” in the context of the theory. It can be translated into effort, strong intentions, productivity, engagement, or participation in work-related activities. These various interpretations explain why applied research has operationalized the VIE theory in very heterogeneous ways.

What about the validity of the VIE theory? Miner’s (2015) interviews with established researchers attested high validity to the theory. By contrast, a meta-analysis based on 77 applied studies on the VIE theory reported by Eerde and Thierry (1996) found that the multiplicative model does not allow for better predictions than its individual components. The authors interpreted this finding as indicating a serious lack of validity and recommended that the individual components of the VIE theory be used instead of their multiplicative combination. Overall, academic interest in the VIE theory has probably decreased since the beginning of the twenty-first century because of its contested validity and several other conceptual and methodological problems (Miner, 2015; cf. also van Eerde & Thierry, 1996). The practical usefulness of the theory has also been questioned (Miner, 2015) on the basis of two major criticisms:

1. The calculation of decisions is idiosyncratic. Therefore, using the motivational energy resulting from the multiplication of the three components allows for the most accurate predictions when several alternative decisions are compared for the same individual. However, intersubjective comparisons are virtually impossible because the individual valence of different behavioral outcomes varies across subjects, while even the outcomes that different people consider relevant are not the same in the first place. For example, some employees might assign high valence to health after experiencing severe illness in their families, whereas others might not recognize health as a potential behavioral outcome at all.
2. This kind of calculation is usually not applied in practice. Except for highly formalized collective decisions (e.g., in economic and political committees), most people will usually not determine expectations, instrumentalities, and valences before they make important decisions in order to multiply them with one another (cf. Locke & Latham, 2004). Real-life decisions are often made impulsively, which means that our emotions are of particular relevance (Dijksterhuis, 2004; Slovic, Finucane, Peters, & MacGregor, 2007). Although our emotions might be influenced to some extent by the components included in the VIE theory – making its individual components meaningful for such decision-making processes – they are most likely not determined by the product of the multiplicative process specified in the VIE theory.

Nevertheless, the VIE theory has provided the theoretical foundation for a motivational leadership model that remains influential in current applied research: the *path-goal theory of leadership* (Georgopoulos, Mahoney, & Jones, 1957; House, 1996; House & Mitchell, 1974), which states that managers should support employees in identifying and successfully implementing the best possible ways of realizing their own goals and the goals of the organization. Managers can achieve this by assessing employees’ expectations, instrumentalities, and valences and can subsequently influence them in a way that causes them to form the desired intentions (see <Overview> “Measures”). This idea is based on the fundamental assumption that the three components of the VIE theory are cognitions and can therefore be influenced just like other cognitions (Pinder, 2008). Even though it is not always clear whether cognitions lead to corresponding behavior (acting individuals might objectively lack the required abilities, or external factors might prevent further actions), it can be assumed that expectations, instrumentalities, and valences at least suggest certain intentions and thus might become immediately relevant to behavior (Pinder, 2008).

Scholars have described various means by which managers can affect employees' expectations, instrumentalities, and valences (House & Mitchell, 1974; Isaac, Zerbe, & Pitt, 2001; Pinder, 2008). However, these recommendations are usually based on plausibility and anecdotal evidence as opposed to critical research. A few examples should therefore be enough to provide a general idea of approaches that appear in the relevant literature.

Overview

Approaches to increase employees' *expectations*:

- Clearly explain tasks.
- Communicate clear goals and expectations.
- Develop feedback systems.
- Strengthen employees' self-confidence.
- Offer training/coaching/learning on the job.

Approaches to increase employees' *instrumentalities*:

- Establish clearly visible connections between success and positive behavioral outcomes (e.g., by means of transparent and fair reward systems).
- Show realistic career paths.
- Demonstrate reliability and fairness. Implement measures to build trust.

Approaches to increase employees' *valences*:

- Show new career opportunities (e.g., "If you hold a counseling position with us for three years, it will boost your chances of getting a job as a professor at a vocational college later").
- Implement a "cafeteria plan" that allows employees to choose individually suitable incentives (e.g., a financial bonus, more free time, or a higher pension).
- Improve the match between the organization's and employees' individual goals, e.g., by means of employee-focused conversation techniques during talks (cf. the example "3C-check" in Sect. 19.3) in combination with a bottom-up regulation for the formation of superordinate company goals.

These examples show that the components differentiated in Vroom's (1964) VIE theory have been applied to a systematic search for effective ways to influence employees. Due to the high number of heterogeneous measures, however, it seems unlikely that the path-goal theory will become empirically testable in its entirety. It is remarkable, however, that the path-goal approach does not use the multiplication of the underlying variables even though it is directly derived from the VIE theory.

19.2.3 Locke and Latham's Goal-Setting Theory

Locke's (1968) early work discussed the relevance of particular goal attributes for work performance. He assumed that difficult and specific goals result in better performance than easy, diffuse, or unattainable goals (Locke, Shaw, Saari, & Latham, 1981).

Excursus

Early Psychology of Will as a Precursor of Goal-Setting Theory

The recommendation to form specific and difficult goals will hardly come as a surprise to laypeople (but see Excursus "Motivational Effect of Difficult Goals: A Contradiction Between VIE Theory and Goal-Setting-Theory?"). Early proponents of the psychology of will had already made this proposition. Ach (1935), for example, stressed the importance of goal specificity when he proposed his law of special determination, claiming that the more specific the content of a determination, the more quickly and more reliably it is realized. Hillgruber (1912), on the other hand, documented the importance of goal difficulty for boosting performance and developed his so-called difficulty law of motivation on the basis of this observation.

Excursus

Motivational Effect of Difficult Goals: A Contradiction Between VIE Theory and Goal-Setting Theory?

The call for difficult goals seems to contradict a central argument of the VIE theory (see Sect. 19.2.2), which claims that high expectations of success should have a positive impact on motivational energy. Because success should feel less certain when goals are difficult rather than easy, the VIE theory would assume that motivation should in fact be *lower*. Locke and Latham (2002) solved this ostensible contradiction: If two goals with the same difficulty are compared, a high expectation of success is advantageous; if goal difficulty differs, however, lower expectations of success (in the case of difficult goals) are associated with better performances. Locke (1968) noted, however, that this performance boost occurs only when a goal is accepted. Because extremely difficult goals should be met with comparatively low levels of acceptance in real life, Locke's theory might hold up to only a certain level of difficulty (cf. Miner, 2015).

Early iterations (e.g., Locke & Latham, 1979) of goal-setting theory introduced it primarily as a behavioral technique instead of a comprehensive theory (cf. Schmidt & Kleinbeck, 1999). For instance, Locke and Latham (1979) did not discuss the origins of goals or the mechanisms by which they influence behavior (Kanfer, 1990; Kleinbeck & Schmidt, 1996), and they did not assess motivation as an independent construct. Proponents of goal-setting theory, however, addressed these issues later (cf. Locke & Latham, 1990) and "imported" different motivational approaches (Schmidt & Kleinbeck, 1999, p. 294) to identify moderators and mediators of the goal-setting process.

Figure 19.1 shows the results of continuous research aimed at developing a complete theory of goal-setting antecedents, processes, and outcomes (Locke and Latham, 2004). Currently, goal-setting theory represents a complex and comprehensive theory of the goal-setting aspect of work motivation. A detailed discussion of all variables included in Fig. 19.1 alongside the relevant underlying processes can be found in Locke and Latham (2004, 2013). Some mediators and moderators will briefly be discussed here. According to goal-setting theory, the mediators (psychological mechanisms) of goal realization are the willingness to expend effort, persistence, the focus of attention, perceived self-efficacy, and the utilization of suitable task strategies (Latham & Locke, 1991; Locke & Latham, 1990). Moderators (i.e., variables that influence the strength and/or direction of an effect between two other variables) of the effect of difficult and specific goals, on the other hand, are commitment, aptitude, feedback, situational restrictions, and task complexity. Insufficient aptitude and situational restrictions can represent objective obstacles and thus reduce the effect of a goal. It is interesting that the assumptions of goal-

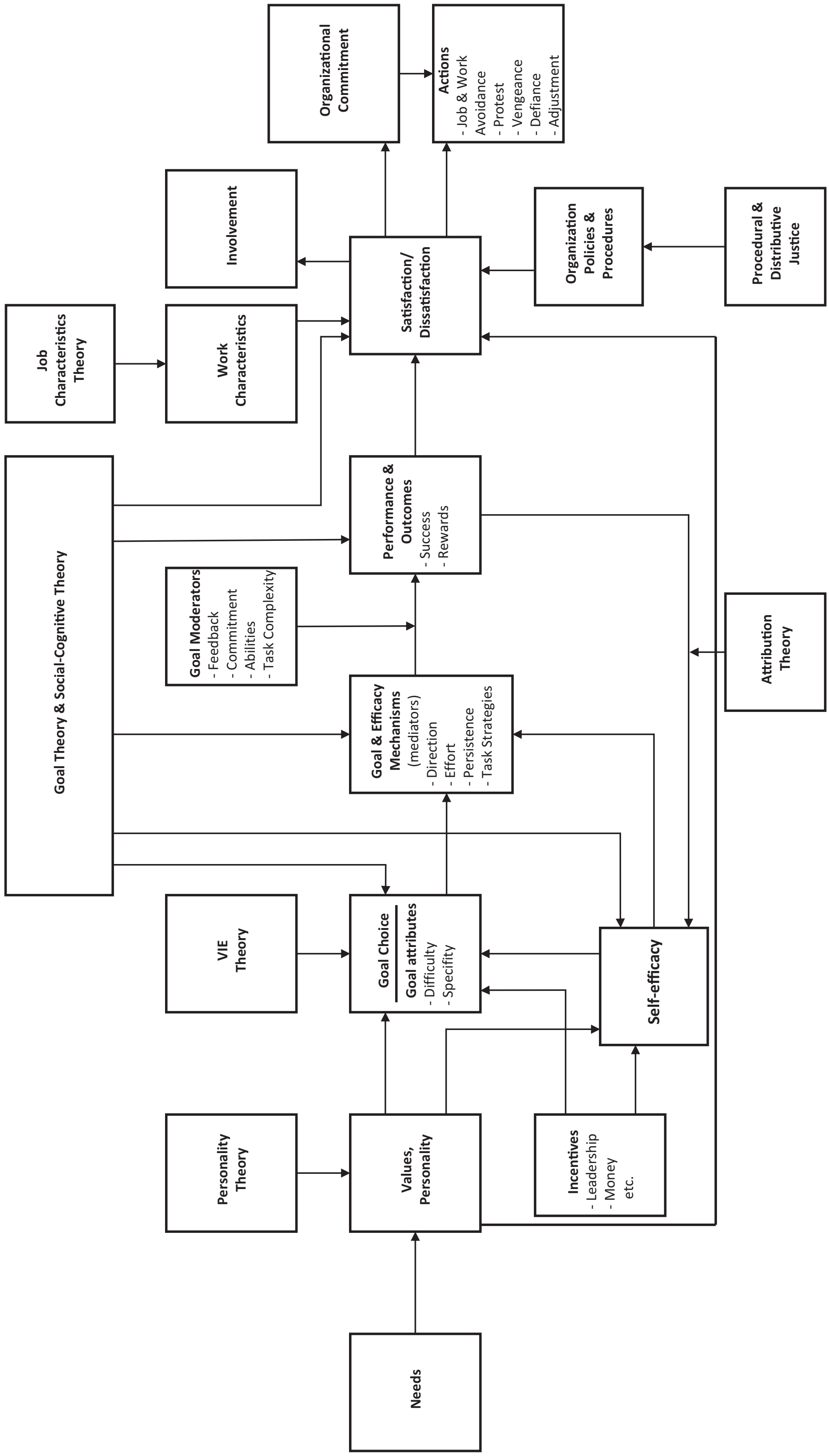

Fig. 19.1 Goal-setting theory: Key variables and processes (Adapted from Locke and Latham (2004))

setting theory do not seem to apply to complex and novel tasks. Earley, Connelly, and Ekegren (1989) were able to show that vague "do your best" goals result in better outcomes than specific goals in such situations. Wood and Locke (1990) countered that complex and novel tasks are characterized by a lack of routines that are available for coming up with solutions, and this in turn creates an advantage of learning goals over performance goals. In line with the theory, however, these learning goals should be specific and difficult (cf. Latham & Locke, 2007) before they can be supplemented by equivalent performance goals. The left side of Fig. 19.1 also shows *needs* as a factor that influences the goal-setting process. Locke and Latham (2004) explicitly stated that their earlier work failed to acknowledge the role of "unconscious" processes and suggested the inclusion of projective measures. This is a particularly remarkable suggestion considering that the same authors had claimed only a few years earlier (Locke & Latham, 2002) that even though the "unconscious" might exist, it should not have a strong impact on goal setting. Newer contributions by proponents of goal-setting theory have also begun to include volition (cf. Locke & Latham, 2004). The authors primarily consider this construct in the form of a general assumption about free will during the processes of setting and pursuing goals; however, it is not the type of functional-analytic consideration that is found elsewhere (cf. Kehr, 2004c; Kuhl, 2000).

Goal-setting theory has resulted in a great deal of empirical research (cf. Locke & Latham, 1990). Latham, Stajkovic, and Locke (2010) explained that over 1,000 studies have demonstrated the positive effect of specific and difficult goals on performance, including many field and intervention studies. A similar conclusion has been reached by diverse meta-analyses on goal-setting theory (cf. Miner, 2015). However, Kanfer et al. (2012) noted that there has been much more research on goal difficulty than on goal specificity. The latter has often been included only in fairly rough designs, namely, the comparison between a specific goal and a "do your best" goal. Because the lack of motivational energy for such vague goals is fairly obvious, such designs do not provide a particularly convincing test of the theory. Instead, research and practice would benefit from continuous or at least more nuanced modeling of goal specificity.

The most important conclusion of goal-setting theory for everyday life is of course that we should set difficult and specific goals for ourselves and others. Locke and Latham 2004; (cf. Miner, 2015) went one step further and described distinct steps that should be considered when applying goal-setting theory:

1. Develop and specify a working model of the task at hand.
2. Specify how performance is measured.
3. Specify the standard that should be met. It should be possible to measure this standard objectively or through behavioral observation. Choose a standard that is difficult yet achievable.
4. Specify the time frame.
5. Clarify which goals should be prioritized if several goals are given.
6. Assess the difficulty and importance of each goal. The measure of performance equals the sum of products of difficulty, importance, and degree of goal realization across all goals.
7. Determine which goals require cooperation, how much coordination is required, and how cooperation can be achieved. Use group goals.

Miner (2015) reported that some field studies have provided evidence for the importance of such measures, whereas others have failed to do so. This is why he concluded: "Overall, goal-setting procedures appear to have considerable motivational potential with the right people under the right circumstances" (p. 173).

More recently, some researchers have also looked at the "dark side" of goal setting. A laboratory study by Schweitzer, Ordóñez, and Douma (2004) demonstrated that participants with specific and difficult goals were more likely than those with "do your best" goals to resort to unethical behavior and to break rules. This effect was stronger the closer they were to reaching their goals. It is possible that some recent scandals might have been catalyzed by these processes, such as the emissions scandal in the automobile industry that the media has blamed on exaggerated and unattainable managerial goals.

Overview

Content and Process Theories of Employee Motivation?

Some older textbooks have distinguished between content theories and process theories of employee motivation (cf. von Rosenstiel, Kehr & Maier, 2000). According to this distinction, Maslow's (1943) hierarchy of needs or Herzberg's (1966) two-factor theory would be considered content theories, whereas Vroom's (1964) VIE theory or Locke and Latham's (1979) goal-setting theory would be considered process theories. This distinction is based on the idea that content theories divide needs (Maslow) or motivators (Herzberg) into categories according to their thematic content, while process theories address the *process* of motivation, for example, in the form of a multiplicative decision-making process (Vroom). However, we decided not to apply this distinction. Authors of so-called content theories have by no means ignored processes: Maslow, for example, clearly stated that higher level needs are not activated before lower level needs are satisfied. The assumption of such a process is probably much more central to Maslow's concept than the simplistic placement of different needs into different classes. Vroom, on the other hand, did not by any means focus exclusively on the processes of motivation; instead, the classification of different aspects of decision-making into valences, instrumentalities, and expectations was clearly based on thematic content (see Chap. 5).

The discussion of motivation should not be restricted by a thematic or a process-related perspective. The two aspects need to be combined to create a comprehensive theory of employee motivation. Thus, the differentiation between content and process theories seems obsolete.

19.2.4 Self-Determination Theory by Deci and Ryan

Self-determination theory (Deci & Ryan, 1985, 2000; Ryan & Deci, 2000) is without a doubt a modern classic because it is based on decades of theoretical and empirical work on *intrinsic* and *extrinsic motivation*. Earlier (see Sect. 14.2), we already established that self-determination theory was developed from preceding approaches to intrinsic motivation and the corruption effect. An important feature of the theory is the distinction between *autonomous* and *controlled* motivation (Gagné & Deci, 2005). Autonomous motivation is experienced as self-determined, while controlled motivation feels as though it has been determined by external factors. In addition, the distinction between intrinsic and extrinsic motivation is still relevant today.

Moreover, the model is based on the assumptions that people have three basic universal needs (*autonomy*, *competence*, and *relatedness*; cf. Gagné & Deci, 2005; Schüler, Brandstätter, & Sheldon, 2013) and that intrinsic motivation results (exclusively!) from the satisfaction of these needs. According to self-determination theory, intrinsic motivation is therefore always autonomous (Gagné & Deci, 2005). A more detailed description of the three basic needs as well as a critical discussion of the underlying assumptions of the model can be found in Sect. 14.2.

In the context of the *organismic integration theory* (*OIT*), self-determination theory addresses the question of how external behavioral goals that are determined by our social surroundings can be integrated into the self through the process of *internalization* (Ryan & Deci, 2000). Progressive internalization results in four types of extrinsic behavioral regulation that gradually represent more self-determined developmental stages and have different degrees of positive effects on psychological well-being (Vallerand, 1997).

Externally regulated behavior does not correspond to personal intentions and is instead externally controlled (e.g., a sewer sews as long as the head worker is nearby and will punish anyone who is slacking off). By contrast, *introjected regulation* does not require immediate external control. It is instead based on internalized social pressure (e.g., an executive consultant works overtime because he would feel guilty otherwise). *Identified regulation* means that an action was originally initiated from the outside but has in the meantime been integrated into an individual's value and goal systems (e.g., a nurse helps patients because he thinks that it is important to help others). Finally, *integrated regulation* is the strongest self-determined form of extrinsic motivation in which complete correspondence with personal values and goals and a high level of the relevance of the behavior for an individual's identity is established (e.g., not only does a scientist read papers because she thinks that it is important and it matches her value system, but also because she perceives her job as a "vocation"). Gagné and Deci (2005) stated that integrated and identified regulation represent additional dimensions of autonomous motivation alongside intrinsic motivation.

Proponents of self-determination theory have claimed that it can explain the role of motivation in the workplace (cf. Gagné & Deci, 2005). Pinder (2008) observed, however, that research inspired by the theory has primarily been conducted in the laboratory or in academic contexts, with a few exceptions in the fields of public health and athletics. Two main research strategies have been developed in the context of self-determination theory. The first determines the extent of satisfaction of the assumed basic needs and then tests whether positive effects on performance and satisfaction can be observed (cf. Gagné, 2003; Kashdan, Julian, Merritt, & Uswatte, 2006; Schüler et al., 2013). The second strategy asks for the exact reasons behind why we pursue a particular activity. The Motivation at Work Scale (MAWS; Gagné et al., 2010) was developed for this latter purpose: The item "because I like my work" measures intrinsic motivation; the item "because the work matches my values" measures identified regulation; the item "because my reputation is based on it" measures introjected regulation; and the item "because I earn money" measures external regulation (Gagné et al., 2010). The MAWS no longer assesses integrated regulation because it is virtually indistinguishable from intrinsic motivation in empirical studies (Gagné et al., 2015).

Study

Validation of the Motivation at Work Scale

Gagné et al. (2010) conducted a comprehensive validation study of the Motivation at Work Scale (MAWS) with four samples of pilots, executive employees, correctional staff, and workers. Depending on the sample, several antecedents (e.g., perceived organizational support) and various criteria (e.g., work-related well-being, affective and normative organizational commitment, stress and physical health) were measured in addition to the MAWS. Apart from one exception, the findings showed significant and meaningful intercorrelations between all of the motivational measures that decreased between less related measures (the lowest correlation was found between intrinsic motivation and external regulation). Moreover, the authors found that predictors and criteria were for the most part associated in ways that supported their hypotheses. Unfortunately, it was not reported how much incremental variance was explained by the different types of motivation. It is therefore possible that some of the significant correlations were in fact artifacts. The two autonomous types of motivation (intrinsic motivation and identified regulation) were more strongly associated with all criteria than the two controlled types of motivation.

A recent study by Güntert (2015) raised the suspicion that all of the variance in studies on self-determination theory can be explained by autonomous motivation alone. Güntert conducted an online study with employees of a Swiss insurance company. He intended to test the extent to which the types of motivation measured with the MAWS play a mediating role between various organizational antecedents that are commonly measured with employee surveys (motivational potential of the job, leadership conducive to autonomy, knowledge about organizational strategies) and several criteria (job satisfaction, intention to quit, organizational citizenship behavior). Güntert found some of the expected mediating relationships. However, this was the case only for the two types of autonomous motivation (intrinsic motivation and identified regulation) but not for the two controlled types of motivation. On the basis of these results, Güntert raised the question of whether controlled and externally determined regulation plays any role in modern organizations at all or whether such an influence is an exception rather than the rule.

In general, studies on self-determination theory have clearly shown that autonomous motivation is beneficial, whereas controlled motivation is harmful (cf. Deci & Ryan, 2008). By itself, however, this observation appears rather trivial: Small children are already familiar with it when their parents tell them that they are not allowed to play outside until they finish their homework. After reviewing criticisms of the self-regulation theory, Latham (2012) therefore concluded that the theory does not yet meet the requirements for being considered a complete and comprehensive theory of work motivation.

According to Gagné et al. (2010), all organizational actions that promote the satisfaction of the three basic needs – autonomy, competence, and relatedness – are suitable for the practical application of self-determination theory. For this purpose, the authors listed several relevant areas; however, they did not specify the underlying psychological mechanisms. These areas include the design of external frameworks (time pressure, control mechanisms, performance-based incentives), leadership focusing on control or autonomy, as well as ways to design work tasks and working conditions. A closer examination of these options has the potential to open up a wide field for application and provide many new tasks for researchers.

19.3 The 3C-model of Work Motivation

Almost all motivational constructs that have been discussed in this volume so far are suitable for offering a better understanding of motivation in the workplace. This is true for goals and goal conflicts, implicit (and explicit) motives, volition, intrinsic and extrinsic motivation, as well as flow, to name just a few. However, perhaps even more than in basic research, the application of motivational constructs requires researchers to recognize connections and use this knowledge to solve practical problems of motivation by applying effective interventions. But what are the connections between the aforementioned constructs? Are they connected in a systematic way? Is it possible to draw lines between their different underlying theories or even combine them?

19.3.1 A Brief Introduction to the 3C-model

The 3C-model[2] of work motivation (Kehr, 2004b, 2014) was developed with the intention to create an integrative framework for the systemization of the relationships between various motivational constructs and the already existing approaches of motivational psychology.

Figure 19.2 presents a graphical illustration of the 3C-model. "3C" refers to the three components of motivation that are shown as partially overlapping circles. On a distal level (for the distinction between distal and proximal motivational levels, see <Excursus> as well as Kanfer & Heggestad, 1997), these components are implicit motives, explicit motives, and subjective abilities (see Chap. 9 for a distinction between implicit and explicit motives). The division into three components is based on McClelland's distinction

[2]The 3C-model was initially published as the "compensation model of work motivation and volition" (Kehr, 2004b). The original title referred to one of the central assumptions of the model, namely, that volition can cover for insufficient motivation. Because of the potential confusion with "worker compensation," however, the name was changed to the "3C-model."

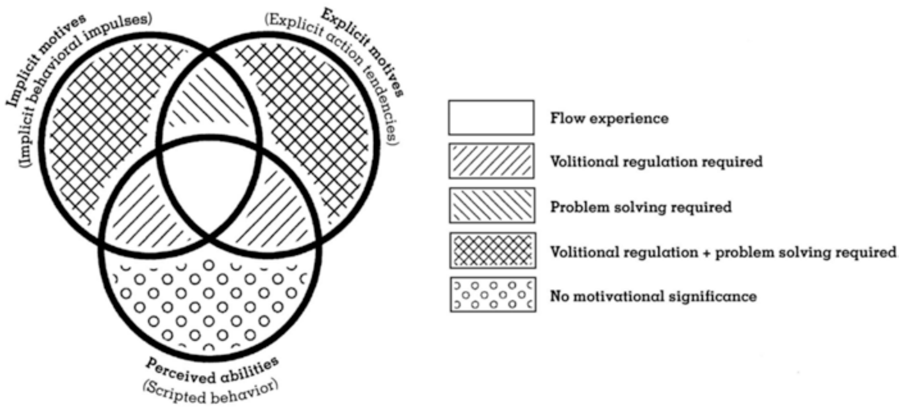

Fig. 19.2 The 3C-model of work motivation (Adapted from Kehr (2004b))

of *motives*, *values*, and *skills* (McClelland, 1985; cf. McClelland, Koestner, & Weinberger, 1989).

Excursus
Distal and Proximal Motivation

Kanfer (1990) distinguished between a distal and a proximal motivational level in accordance with how closely a motivational construct is located to actual behavior. For example, the unspecific implicit achievement motive is comparatively distal, whereas emotions experienced during an activity is comparatively proximal because it is more closely linked to behavior. The 3C-model of work motivation incorporates both distal (e.g., implicit and explicit motives) and proximal constructs (e.g., affective and cognitive preferences). Moreover, the model specifies how and when distal motivational predictors become proximal ones. The following provides an example: The strong affiliation motive of a clerical assistant allows for predictions with regard to how often and how long he will engage in conversations with colleagues that are not related to work (distal). If a call from a friendly colleague triggers the implicit affiliation motive, the motive engenders the spontaneous affective preference for answering the phone. This preference can be used as a proximal indicator of how long and intimate the conversation will be.

Insufficient correspondence between implicit and explicit motives on the distal level results in a *latent* intrapsychic behavioral conflict. The conflict *manifests* itself as soon as the affective and cognitive preferences triggered by these motives become incompatible.

The *implicit motives* addressed by the research on and application of the 3C-model have typically been the "big three" (McClelland, 1995) motives of achievement, affiliation, and power. These motives were already discussed in Chaps. 6, 7, and 8. Nevertheless, it is possible to include further implicit motives, for example, the ones derived from Murray's (1938) original classification. *Explicit motives* are based on verbal self-assessments and are frequently associated with concrete goals. This connection can be exemplified by an executive consultant who sees herself as achievement-motivated (her explicit motive) and sets the performance-related goals to pursue a PhD in addition to fulfilling her time-consuming work responsibilities. In this scenario, *subjective abilities* represent the consultant's self-assessment of being competent enough to successfully finish her PhD.

The overlapping areas of the three circles show that a person's explicit motives and goals can be consistent with the person's implicit motives and subjective abilities. However, this is not necessarily always the case. The executive consultant might, for example, discover that she actually does not enjoy research (if there is not enough support from implicit motives, e.g., if her implicit achievement motive is in fact not very strong, but her implicit power motive is) and that the workload might be too large after all (e.g., because she overestimated her intellectual abilities).

The three components affective preferences, cognitive preferences, and scripted routines represent the proximal level. In the workplace, *affective preferences* can, for example, take the form of employees' enthusiasm to engage in organizational transitions, or, on the contrary, their fear of getting involved in these transitions. *Cognitive preferences* would then be employees' goals and intentions to support the transition. Finally, *behavioral routines* ensure the smooth execution of familiar actions, e.g., drawing flow charts of the transition.

Volition and *problem-solving* are the functional mechanisms of the 3C-model. Volition is required to compensate for insufficient motivation, while problem-solving compensates for a lack of behavioral routines due to insufficient abilities.

Excursus

The Difference Between Volition and Problem-Solving

In the workplace, motivation-related and skill-related problems need to be distinguished, because they require different compensating mechanisms: voliton for internal behavioral barriers and problem-solving for external ones.

For example, a company employee perceives software that is prone to errors as an external behavioral barrier. This barrier is related to the employee's skills and not her motivation because she is unable to solve the problem by herself even if she is motivated. Instead, she is in need of problem-solving strategies such as using different software or consulting an expert. An example of a motivational barrier would be if an employee with a strong affiliation motive is unwilling to end a conservation with a friendly yet clearly insolvent customer. Overcoming this barrier would require volitional strategies such as imagining the amount of money the employee could earn from a different customer in the same amount of time.

Empirical studies (Kehr, 2004c, Study 4) have provided support for the distinction between volitional and problem-solving strategies: Employees of an automobile company were given scenarios that described either an internal (motivational) or external (ability-related) behavioral barrier. Given a broad selection of possible strategies to choose from, their choices showed the expected pattern: They preferred volitional strategies when presented with internal barriers, whereas they preferred problem-solving strategies when presented with external barriers.

In addition, a distinction can be made between two types of volitional regulation (Kehr, 2014). Type 1 volition is required for tasks that match our cognitive preferences but not our affective preferences, for example, if we are asked to work on unpleasant tasks during change processes. Type 2 volition, on the other hand, is required when affective preferences are activated (via the activation of implicit motives) although the task at hand might clash with our cognitive preferences. We experience such situations as temptations (if hope motives are activated) or fear (if fear motives are activated). A manager might, for example, be tempted to sabotage a change process she perceives to be controlled by others, or she might be afraid that the process could undermine her own chance of getting a promotion.

Intrinsic motivation results whenever implicit and explicit motives correspond on the distal level (*latent* intrinsic motivation) and cognitive and affective behavioral preferences correspond on the proximal level (*manifest* intrinsic motivation). The correspondences are captured by the overlapping areas in Fig. 19.2. According to the 3C-model, intrinsic motivation is thus independent of whether or not an individual possesses the necessary subjective abilities to finish a task: A craftsman might enjoy using a new work bench even if he initially does not yet know how to use it optimally. In an analogous manner, people are often highly motivated at the beginning of a new project even if they do not yet have enough personal and external resources for its completion. Optimal motivation is found in the area in which all three components overlap, i.e., when the acting individual is intrinsically motivated and subjectively able to solve a task. On the phenomenal level, this state is often experienced as flow (see Sect. 14.5).

Study

Empirical Research on the 3C-model

Two central assumptions of the 3C-model are the dysfunctional consequences of motivational discrepancies and their connection with volition as well as the occurrence of flow when all three motivational components are fulfilled. Several laboratory and field studies have tested these two assumptions (for an overview, see Kehr, 2014). For example, a laboratory study on motivational discrepancies by Trapp and Kehr (2016) showed that employees tended to ask for higher raises during negotiations if their implicit power motive had been activated beforehand. However, this was true only if no explicit affiliation motive ("Be advised that you will be able to get to know your negotiation partner personally after negotiations") had been activated at the same time. The explicit affiliation motive was thus able to neutralize the influence of the implicit power motive. In an earlier longitudinal survey of managers, Kehr (2004a) had already shown that conflicts between implicit and explicit motives result in decreased self-assessed volitional competence and an impairment of subjective well-being. Gröpel and Kehr (2014) extended this line of thought in a laboratory study. They found that power- and achievement-related behavior that is not supported by corresponding implicit motives depletes volitional resources that thereby become unavailable for subsequent self-control tasks. These findings confirm the assumptions of the 3C-model about Type 1 volition.

Another survey study of managers with two measurement periods (Kehr, 2005) looked at Type 2 volition and found that implicit fear motives are associated with an increased tendency to engage in unwanted intrusive thoughts that in turn lead to a decrease in self-assessed volitional competence and an impairment of subjective well-being.

The 3C-model claims that we experience flow if all three motivational components are satisfied. Optimal challenges by themselves are therefore not sufficient for flow experiences; our motives have to be congruent. Schattke, Brandstätter, Taylor, and Kehr (2014) found evidence supporting this assumption in a quasi-experimental study of indoor climbers whose experience of flow depended not only on the subjective assessment of their climbing skills but also on whether or not they met the condition of motive congruence for their achievement motive (as expected for climbers). Schiepe-Tiska, Schattke, and Kehr (2016), on the other hand, examined flow as a phenomenal state on the proximal level of motivation during work on an open innovation platform. As expected, the depth of the flow experience depended on the three-way interaction of task-related affective preferences, cognitive preferences, and subjective abilities. The experience of flow was strongest when all three predictors were high and weakest when all three predictors were low.

19.3.2 Compatibility with Conceptualizations of Basic Research on Motivation

The basic assumptions of the 3C-model that we briefly introduced in this chapter are highly compatible with many other theories on motivation and volition that are discussed in this volume. First, the 3C-model is based on the distinction between *implicit and explicit motives* (see Chap. 9). Research on behavioral goals (see Chap. 11) also corresponds to the assumptions of the 3C-model even though the former is much more in depth because the 3C-model does not address certain attributes of goals or the formation of goals and intentions. Still, we do not agree with Kleinbeck who claims that "actions without goals are unthinkable" (Kleinbeck, 2010, p. 285). Goals *can* initiate and regulate behavior, but we can also act without goals (see the concept of autotelic activities by Csikszentmihalyi, 2000). Goals by themselves, on the other hand, do not guarantee corresponding actions even if we set them ourselves (Brunstein, Schultheiss, & Grässman, 1998; Rawolle, Kehr, & Glaser, 2007).

To what extent is the conceptualization of intrinsic motivation that is found in the 3C-model compatible with alternative concepts (for an overview, see Sect. 14.2 in this volume)? In Fig. 19.2, intrinsic motivation is represented by the overlapping areas of the two motive circles: when affective and cognitive preferences for a certain behavior match. However, it is possible for our affective preferences to be activated even when we do not have any simultaneous cognitive preferences. As long as there are no distracting cognitive preferences, it seems plausible to think of such affect- or impulse-driven behavior as intrinsically motivated. Wundt (1896) called this a *drive-initiated behavior* ("Triebhandlung"). This notion indicates the necessary and sufficient conditions for intrinsic motivation (cf. Kehr, 2004b): Affective preferences that support the behavior at hand constitute the necessary condition for the emergence of intrinsic motivation. The sufficient condition for intrinsic motivation is fulfilled when, in addition to the presence of affective preferences, no conflicting cognitive preferences are present. This perspective matches the concept of intrinsic behavioral incentives (as opposed to extrinsic outcome expectations) favored by Rheinberg (see Chap. 14).

The assumptions about *flow* contradict earlier models that were based solely on the correspondence between abilities and requirements (Csikszentmihalyi, 1991, 2000). However, they are compatible with the "flow hypothesis of motivational competence," which was theoretically developed and empirically supported by Rheinberg (see Sect. 14.7) and postulates that we experience flow only when our current behavior simultaneously matches our implicit motives and our current goals.

Kuhl (see Chap. 13) distinguishes two volitional modes, self-control and self-regulation. As long as it is a conscious process, *volition* in the 3C-model corresponds to Kuhl's notion of self-control, a conscious volitional mode that kicks in when there is a discrepancy between conscious goals and implicit motives. What Kuhl calls self-regulation corresponds to the unconscious mechanisms of volitional behavioral regulation (see the distinction between automatic and conscious volitional behavioral regulation in Kehr, 2004c). These mechanisms, however, are not further specified in the 3C-model. Flow in the 3C-model corresponds to the notion of self-organization (Kuhl, 1996), which is a non-volitional form of behavioral regulation that relies not only on motivational support but also on script-based routines. Kuhl's PSI theory (see Sect. 13.5) is of course also much more detailed than the 3C-model, which has primarily been tailored to applied research. Nonetheless, hypotheses derived from the 3C-model do not contradict hypotheses derived from PSI theory.

However, how volition is understood in the *Rubicon model* of behavioral phases (Heckhausen & Gollwitzer, 1987; see Chap. 12) differs from the understanding set forth in the 3C-model (cf. Kehr, 1999; Sokolowski, 1997). In the Rubicon model, certain behavioral phases, namely, the pre-actional planning phase and the actional phase, are perceived as volitional. The 3C-model, on the other hand, defines volition in functional terms.

Accordingly, volition is thought to be required for overcoming internal behavioral barriers regardless of which behavioral phase they occur in.

19.3.3 Compatibility with Classic Theories of Motivation

What are the similarities and differences between the 3C-model and classic theories of motivation? What further questions should be addressed by future research?

An initial comparison between the two-factor theory (Herzberg, 1976; see Sect. 19.2.1) and the 3C-model might suggest that the distinction between motivators and hygiene factors indicates that the former are associated with affective preferences, while the latter correspond to cognitive preferences. This could be the case because implicit motives might be aroused by motivators, whereas explicit motives might be activated by hygiene factors. Suitable empirical studies would need to be conducted to test this hypothesis. In principle, the two approaches do not seem to contradict each other. Further empirical investigations might even be able to explain some of the inconsistencies that have traditionally been used as counterarguments against the two-factor theory because, on the one hand, the 3C-model, unlike the two-factor theory, represents a differential approach to human motivation. We could, for example, hypothesize that feedback, which is one of the motivators described by Herzberg (1976), would have an especially strong impact on achievement-motivated individuals. The chance to get promoted might have a particularly strong motivating influence on power-motivated people. Recognition might affect power- and affiliation-motivated individuals in a similar way depending on the exact form of recognition (e.g., in front of others vs. in a cordial and private environment). On the other hand, the 3C-model specifies an overlapping area between implicit and explicit motives. Some of the factors that Herzberg (1976) grouped as motivators and hygiene factors might be misplaced because his dichotomous approach did not allow for other options that might fall "in between."

Kehr (2004b, 2004c) already compared the 3C-model with Vroom's (1964) VIE theory and goal-setting theory (Locke & Latham, 1990). The valences, instrumentalities, and expectations of the VIE theory are limited to two components only: explicit motives (which McClelland, 1985, called "values") and subjective abilities. Because it also includes implicit motives, the 3C-model expands on the predictions of the VIE theory. Early conceptualizations of goal-setting theory (Locke & Latham, 1990) did not consider implicit motives, which were included later (e.g., Locke & Latham, 2004; cf. Fig. 19.1). So far, however, the theory does not explicitly specify how implicit motives are related to goals and how this connection affects goal striving. Basic research on implicit and explicit motives (see Chap. 9) that is based on the 3C-model is more specific in this regard. Moreover, neither the VIE theory nor goal-setting theory addresses internal behavioral barriers or the necessity for volitional self-control. Even though Locke and Kristof (1996) also used the term "volition," their understanding was reminiscent of Rand and Branden's (1964) fairly unspecific view of (free) deliberate behavioral causes, rather than the functional-analytic understanding of volition found in the 3C-model.

Self-determination theory and the 3C-model have a lot in common. Both approaches feature a phenomenal understanding of intrinsic motivation as the enjoyment of behavior (see Gagné & Deci, 2005; Gagné et al., 2010). Furthermore, both approaches are based on the comparable assumption that certain implicit motives have to be fulfilled (3C-model) or that certain basic needs have to be met (self-determination theory) for intrinsic motivation to emerge. In contrast to self-determination theory, however, the 3C-model does not suggest that there are specific universal needs that are innate in all humans or that intrinsic motivation is possible only when these needs are met (see Sect. 19.2.4). This is in fact a fairly common criticism among researchers who are not proponents of self-determination theory (see Latham, 2012; see also Sect. 14.2).

Excursus

Three Big Motives vs. Three Basic Needs

McClelland (1995) distinguished three major motives: achievement, affiliation, and power. Self-determination theory is based on the distinction between three basic needs known as competence, relatedness, and autonomy. Schüler et al. (2013) pointed out substantial conceptual similarities between these two taxonomies. The similarities between the achievement motive and the need for competence are particularly strong (both are related to a positive assessment of achievement). The affiliation motive bears a resemblance to the need for relatedness as well (both are related to the positive experience of social relationships). Finally, the power motive and the need for autonomy also appear to have something in common as they are both related to the idea of control. This last connection, however, is comparatively ambiguous because the power motive is related to control over others, while the need for autonomy is linked to control over the self (Schüler et al., 2013).

Figure 19.3 presents a graphical illustration of another interesting similarity between the 3C-model and self-determination theory. It shows that the terms used for the various degrees of extrinsic motivation were carefully chosen: "External," "introjected," and "identified" must all be understood in terms of their *relation to an individual's explicit motive system*. On the other hand, "integrated" is behavior in as much as it is *integrated into the implicit motive system*.

Example

Gradual Progressive Internalization

Imagine a fourth grader who does not like math but is pressured by his mother to do his homework (external regulation). He gradually develops an understanding of how math might be meaningful and useful in other areas of life (introjected regulation). By the time he graduates from high school, he might see math as equally or even more important than other subjects (identified regulation). Because of his good

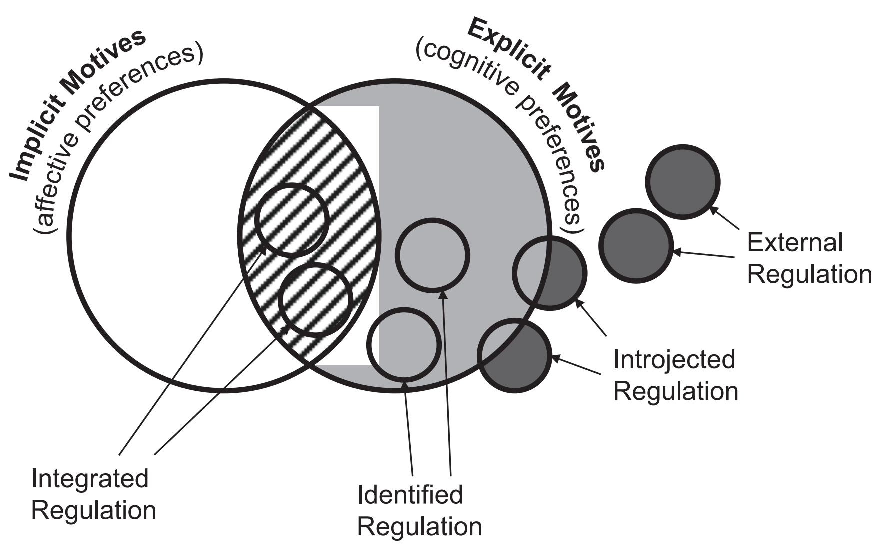

Fig. 19.3 Gradual internalization (adapted from Kehr (2004c))

grades, he decides to study math in college. He views difficult exercises as particularly challenging and begins to experience satisfaction when he solves them (integrated regulation). Three decades later, he receives the Fields Medal.

Why did this math professor in the making not realize that he enjoyed arithmetic problems and that they activated his achievement motive when he was in elementary school? Explicit goals channel implicit motives (Lang, Zettler, Ewen, & Hülsheger, 2012; Winter, John, Stewart, Klohnen, & Duncan, 1998). In our example, this channeling process occurred at a later point in time in school and at university. Prior to this, he simply had not yet learned that arithmetic problems could satisfy his achievement motive.

As a phenomenon, integrated regulation is no longer distinguishable from intrinsic motivation. Figuratively, they are both related to the lens in Fig. 19.3, i.e., they are supported by affective preferences. Because they lack a clear phenomenal distinction, the two types of motivation are also empirically indistinguishable, as the proponents of self-determination theory have already recognized (Gagné et al., 2015). Unfortunately, integrated regulation is therefore no longer measured separately (Gagné et al., 2015) even though earlier studies on self-determination theory had suggested that the relative amounts of variance explained by intrinsic and identified motivation should be separated by testing the incremental variance (cf. Burton, Lydon, D'Alessandro, & Koestner, 2006).

Figure 19.3 also highlights why autonomous types of motivation yield better results than their controlled counterparts: The three autonomous types of motivation are supported by affective and/or cognitive preferences; the controlled types of motivation are not.

Excursus

Practical Application of the 3C-model

In practical applications, such as self-management (Kehr, 2008; Kehr & von Rosenstiel, 2006), coaching (Strasser & Kehr, 2012), leadership training (Kehr, 2011), and change management (Kehr & Rawolle, 2009), the three components are referred to as *head, heart, and hand.* This intuitive metaphor is based on work by Swiss educator Johann Heinrich Pestalozzi and essentially communicates the same message as the scientific terminology.

The 3C-model can be used for systematic diagnosis and intervention when there is insufficient motivation in the workplace. Specifically, it is useful to base diagnoses on the assessment of the structural motivational components on the proximal level with the so-called 3C-check, through which the components are related to concrete activities. Possible questions that can be asked include (cf. Fig. 19.4a):

- Head (cognitive preferences): "Do I really think that [this activity] is important?"
- Heart (affective preferences): "Do I really enjoy [this activity]?"
- Hand (subjective abilities): "Am I able to perform [this activity] well?"

The answers to these questions indicate which supporting measures need to be implemented. Let us assume that a manager conducts a 3C-check with one of her employees about how to conduct interviews with customers. If the 3C-check indicates that this activity is supported by the head and heart components (i.e., by cognitive and affective preferences) but not by the hand component (which equals area A in Fig. 19.4b), a deeper conversation should help clarify whether it is only subjective abilities that are lacking or objective ones as well. If the employee lacks objective abilities (e.g., the employee is not sufficiently familiar with the employed interview guidelines), solutions such

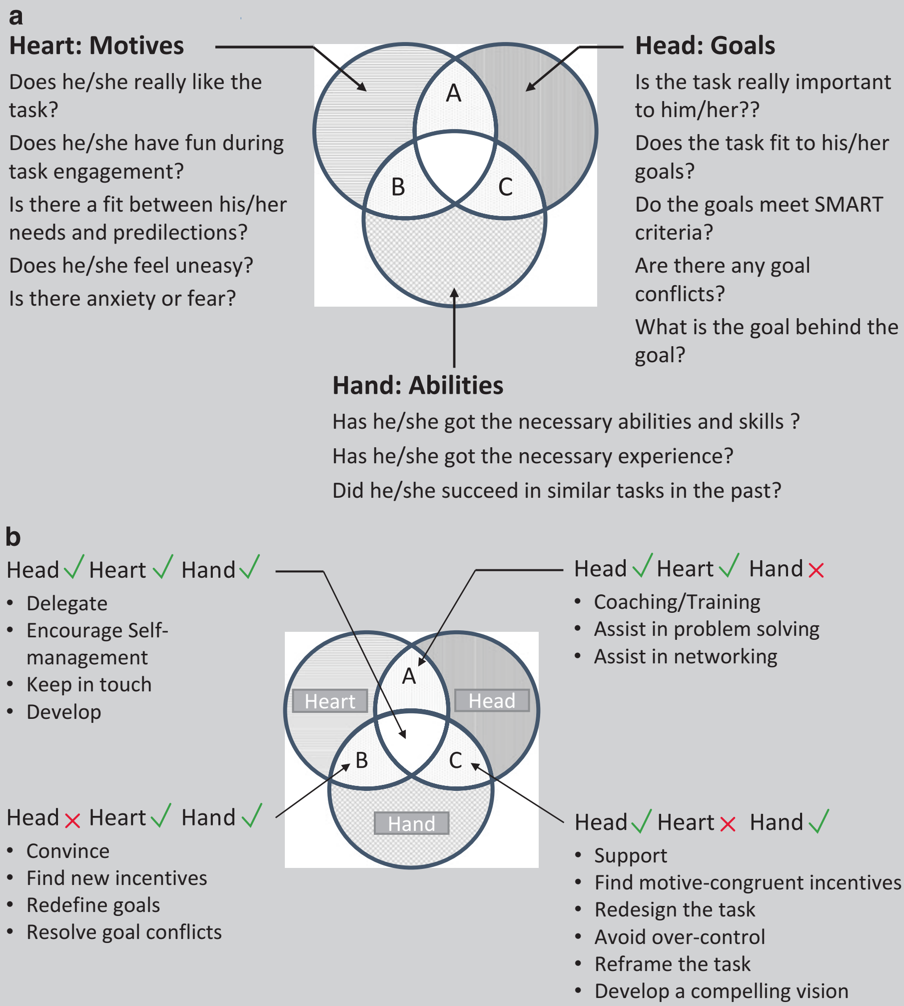

Fig. 19.4 (**a**) Application of the 3C-model: motivation diagnosis. (**b**) Application of the 3C-model: intervention

as coaching, training, or advice from colleagues should be considered. In some cases, other colleagues can cover some parts of the required task. If, however, the problem is related to low subjective abilities, the manager should attempt to use positive feedback to encourage her employee.

It is also possible that the 3C-check will indicate that the problem is caused by insufficient support from the head component (cognitive preferences): An employee might not be convinced that the suggested interview guidelines are appropriate, or an employee might prefer alternative approaches. Under these circumstances, the manager needs to create the necessary cognitive support (see Fig. 19.4b, area B). Possible measures include persuasion, offering particular extrinsic incentives, or re-prioritizing goals in order to solve the identified goal-related conflicts.

Which measures are useful, however, if the 3C-check shows that the head and hand com-

(continued)

ponents are fulfilled while the heart component (affective preferences) is not? This means that the employee sees his tasks as important, *and* he and his manager are both convinced that he possesses the required abilities to complete them (see Fig. 19.4b, area C). Neither the manager nor the employee would be able to identify the need to intervene without the 3C-check: The manager may think: "The employee is convinced that his task is useful and he is capable of completing it, so why would there be a problem?" Older concepts of leadership such as Hersey and Blanchard's (1969) situational leadership, for which affective preferences were not systematically assessed, would not suggest any reason to intervene in this situation either.

A lack of affective preferences (i.e., listlessness, "belly aches," and particularly fears), however, often accounts for why even intentions with a strong cognitive foundation remain unrealized. A lack of affective preferences is a motivational barrier that can be overcome only with volitional strategies. Yet, volitional resources are limited and depleted quickly (see Kehr, 2004a; Gröpel & Kehr, 2014).

Let us return to our employee. It is imaginable that he does not want to conduct the interviews the way he is supposed to, that he gets nervous when thinking about visiting and talking to strangers, or that he is afraid that his customers will turn him down. There is no panacea for these situations. However, managers are advised not to ignore such problems but instead to try to find solutions along with their employees. It might be possible to set new incentives that are congruent with the employee's motives or to rephrase the task so it can activate the employee's implicit motives and activate beneficial affective preferences. This is what Kehr and von Rosenstiel (2006) named *metamotivation*. For example, if the employee has a strong affiliation motive, he might be assigned to work with only hassle-free and friendly customers. It might also be possible to hold talks with customers as a team. Another approach could be the joint development of a personal vision (see Sect. 19.4.4) that matches an employee's implicit motives.

If these approaches are successful, they will arouse implicit motives, and the employee can thus effectively *avoid* motivational barriers. If they fail, managers can use their experience to help employees find volitional strategies to *overcome* these barriers. Kehr and von Rosenstiel (2006) called this *metavolition*. Recommended approaches include the reduction of excessive self-control (e.g., negative fantasies, suppression of temptations, exaggerated planning) and the replacement of over-control with reframing (positive fantasies) or changes to aversive working conditions, for example by moving the interviews to a neutral location.

19.4 New Fields of Research on Motivation in the Workplace

19.4.1 Motivation of Older Employees

The average age of employees in developed countries is steadily rising. It is therefore hardly surprising that aging has become an increasingly relevant variable in research on motivation. Studies have shown that older employees are by no means less motivated than their younger colleagues. They tend to have a stronger desire for intrinsically motivating work and higher motivational competence (see Excursus).

Excursus

Motivating an Ageing Workforce

The physical, cognitive, affective, and motivational factors of work change as employees grow older. Whereas changes in physical and cognitive resilience in older employees have recently received a great deal of academic attention as a reaction to demographic change (OECD, 2006, 2015), the same is not true for affective and motivational aspects. In part, this lack of interest might have been caused by the implicit assumptions that motivation and affective commitment commonly decrease as employees approach retirement and that the marginal utility of motivational interventions declines with age. Nevertheless, it is particularly relevant for companies to consider the specific needs and goals of their older employees. One reason is that physical and cognitive deficits can be counterbalanced by motivation and volition. In addition, motivated employees can be expected to work productively for a longer time than their unmotivated colleagues, and this can help companies attenuate the effects of a shrinking workforce.

A recent meta-analysis on work-related explicit motives (Kooij, Lange, Jansen, Kanfer, & Dikkers, 2011) showed that older employees differ from younger ones in the following ways:

- Intrinsic work-related incentives (e.g., teamwork, autonomy) are more important to older employees than extrinsic incentives (e.g., prestige, social status, bonus payments). Older employees' motivation and work satisfaction tend to be high if they identify with their work and have a consistent self-image.
- Social motives are just as important to older employees as they are to younger ones. The subjective importance of social relationships at work, however, tends to decrease with age (Kanfer & Ackerman, 2004), suggesting that older employees' social motives are satisfied during their free time rather than in the workplace.
- Growth motives (e.g., mastery, challenges, or development) are less important to older employees. However, the importance of the generativity motive (passing on experience) grows with age.

Contrary to common preconceptions (cf. Posthuma & Campion, 2009) and earlier findings (Rhodes, 1983), recent descriptive studies have shown that older employees tend to be more motivated and satisfied than younger ones (cf. EY, 2015; Ng & Feldman, 2010). Researchers have suggested that these findings can be explained by selection processes (disgruntled employees drop out earlier), growing affective and organizational commitment, and having many opportunities to choose motive-related work throughout one's career (cf. von Rosenstiel et al., 2000). As employees grow older, it becomes more likely that their implicit motives and explicit values will be integrated (Labouvie-Vief, 2003; Thrash, Elliot, & Schultheiss, 2007). Moreover, experience and practice help to increase volitional competence (Muraven & Baumeister, 2000).

19.4.2 Gamification

Another topic that has recently received considerable attention in motivational research is gamification, which captures the idea of incorporating elements of play into work (Sailer, Hense, Mandl, & Klevers, 2013; Werbach & Hunter, 2012). In practice, however, gamification usually means that computer- or software-based elements are incorporated into current activities in order to boost motivation and performance (Deterding, Dixon, Khaled, & Nacke, 2011). For example, apps can be used to create a virtual environment with the goal of reaching a high score or level. The required points are earned through concrete real-life behavior such as completing subgoals or project-related milestones (see <Example>). Thus, work-related tasks can be structured in a playful way and divided into subordinate goals (Kapp, 2012). Virtual rewards for acquiring specific skills or mastering particularly demanding tasks can also be implemented (Cardador, Northcraft, & Whicker, 2016).

Several approaches have been presented to explain why gamification should increase motivation. According to Cardador et al. (2016), there are two main processes – an information-based process and an affective one – that lead to the motivational effect of playful elements at work. Due to the information-based process, the introduction of virtual indicators of progress and reward increases the availability of performance-relevant information. It is thus, for example, easier to ascertain which steps are required to achieve a desired goal. This knowledge should boost motivation, an idea that is in accordance with the assumptions about the motivational effect of specific goals found in goal-setting theory (see Sect. 19.2). Subsequently, the affective process creates positive emotions in players because gamification makes their progress clearly visible at all times. These positive emotions are related to the feeling that players will be able to complete their tasks, approach the realization of their own goals and the goals of others, and gradually become more competent. All of this together satisfies players' basic needs and generates affective preferences for the tasks at hand.

Sailer et al. (2013) investigated the effect of gamification from a differential point of view. They proposed that gamification addresses employees' needs for achievement, power, and affiliation:

- Indicators of progress, increasing levels, and performance curves allow players to always have a clear and immediate understanding of parameters that are related to achievement such as progress toward goal realization and current discrepancy with the target state. This should continuously activate the achievement motive.
- The clear depiction of each player's status and progress should make social comparisons easier and reveal players' individual reputations. Knowledge about other players' progress enables them to control information and provokes competitive emotional reactions, both of which activate the power motive.
- Finally, the introduction of virtual incentives for teams and the establishment of new virtual groups, mutual support, and cooperative virtual rewards could activate the affiliation motive.

The assumed motivational processes and differential assumptions will require further empirical tests.

Example

Process of the Motivational Effect of Gamification at Work

An internal company wiki (database with intranet) with articles and quizzes is installed in order to boost further training, increase the transfer of knowledge, and connect different departments more strongly. An app for mobile devices and desktop computers is used to ensure the internalization of distributed information. Employees who use the app to read an article and correctly answer a subsequent question are awarded points. Eventually, employees level up once they reach a certain score and gain access to additional articles. Answering particularly difficult questions is rewarded by virtual trophies and other extraordinary accolades. At all times, all "players" can follow their own progress as well as the progress of their teammates and the members of other teams throughout the organization. This means that not only do employees receive immediate feedback about their own progress, but they can also compare their own performance with the performances of others. Achievement- and power-motivated employees should therefore be particularly motivated to make use of the wiki. "Unlocking" new content through one's own efforts should in turn result in positive reactions and strengthen perceived self-efficacy.

Many studies have provided evidence for the facilitation of flow through video games, mobile apps, internet-based multiplayer games, and general interactions between humans and computers (Chen, 2006; Hsu & Lu, 2004; Lu, Zhou, & Wang, 2009; Schattke, Seeliger, Schiepe-Tiska, & Kehr, 2012; Webster, Trevino, & Ryan, 1993). Because flow has a positive impact on subjective well-being, job satisfaction, and performance (cf. Sect. 14.5), researchers conducting applied research can be expected to investigate the connection between gamification and flow more often in the near future (see <Excursus>).

Excursus
Gamification

Gamification can enhance activities to increase the frequency of flow. A field study by Hamari, Koivisto, and Sarsa (2014) confirmed this assumption in the athletic context. Morever, a work-related field study by Hamari (2015) showed that the introduction of virtual badges resulted in increased efforts. This result was explained by the ability of virtual badges to fulfill several conditions for flow such as immediate feedback and optimal challenges. Finally, flow-creating elements in educational games (adaptively increasing challenges in particular) were shown to result in effective and lasting learning (Hamari et al., 2016; cf. Kapp, 2012).

Augmented reality (AR) is a domain that is related to gamification. AR refers to the connection between real and virtual worlds through devices such as smartphones or virtual reality glasses with the goals of enhancing perception and the execution of tasks (Azuma, 1997; Bimber & Raskar, 2005). Of particular motivational relevance are the activation of motives through playful elements and control of attention and emotions through the systematic modification of the reality of work. AR creates countless opportunities for the cooperation of psychologists, ergonomists, and designers (cf. Schmalstieg & Hollerer, 2016; van Krevelen & Poelman, 2010). Rapid development in these areas suggests that gamification and AR will constitute important fields for future applied research on motivation. At the same time, both basic and applied research should benefit from the technical opportunities created by gamification and AR.

19.4.3 The Money Motive

The idea of investigating money as an independent motive was probably inspired by practical considerations. Many people seem to pursue money to an extent that seems to push aside other needs such as pursuing a task that provides autonomy and makes a contribution to society. However, the question of whether this desire is really created by a “money motive” or is rather the expression of other explicit motives is quite controversial (see <Excursus>).

Excursus
Need for Money?

Several studies have suggested that monetary incentives increase the productivity of employees and students (Jenkins, Mitra, Gupta, Shaw, & Jenkins, 1998). This is usually true for the quantity of work rather than its quality, which, by contrast, is primarily determined by intrinsic motivation (Cerasoli, Nicklin, & Ford, 2014). Just because money can motivate people to work, however, does not mean that an (implicit) money motive really exists. Evidence for the existence of such a motive would first require the development of suitable operant instruments. Next, empirical analyses would need to show that the money motive activated by monetary incentives and measured with appropriate instruments in fact engenders corresponding affective preferences and subsequently influences operant behavior. There is currently no such evidence. Research on the motivation to earn money has so far been limited to

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explicit self-reports measured with questionnaires (e.g., Srivastava, Locke, & Bartol, 2001). Such research has shown that the motivation derives from various practical considerations (cost of living, support for one's family) and explicit motives such as the need for social comparison, the need for influence and prestige, and the desire to overcome self-doubt (Srivastava et al., 2001). Thus, whether there truly is a money motive remains to be seen.

19.4.4 Motivation and Leadership

Unfortunately, studies on motivation and leadership have so far been relatively isolated from each other (for an exception, see the employee-based goal negotiation by Schmidt & Kleinbeck, 2006), although leadership researchers could benefit from the insights of motivational psychology. In fact, House and Shamir (1993) already assumed that the effectiveness of leadership might be based on the selective activation of employees' implicit affiliation, power, and achievement motives. Amann (2014; Kehr, Amann, & Giessner, 2016) tested this idea and found in a laboratory study that employees' implicit motives had an impact on which leadership style they preferred. If the leadership style matched employees' implicit motives, their performance became significantly better.

Another convergence of research on motivation and leadership can be found in studies on visions. Although research on the construct "visions" has been conducted for decades (Nanus, 1992), it has only recently been implemented in motivational psychology. Rawolle, Schultheiss, Strasser, and Kehr (2016) defined "visions" as mental images of desired and achievable future states that are relevant to an individual's identity. Their pictorial quality in particular is what distinguishes visions from long-term goals that do not need to be concrete images but can in fact be abstract. The results of a laboratory study by Rawolle et al. (2016) suggested that visions affect motivation because the act of painting a mental image activates implicit motives in a way that is analogous to looking at an actual image on a projective test. Hajas (2013) provided indirect support for this assumption in field studies in which he was able to show that the subjective motivational effect of organizational visions depended on how easily they could be visualized. An overview of applied studies on visions can be found in (Strasser, Rawolle, and Kehr 2011).

19.5 What Lies Ahead

Research on motivation in the workplace is at a crossroads. Many of its classic concepts remain very popular among practitioners but tend to be gradually losing their academic relevance – with the notable exceptions of goal-setting theory (Locke & Latham, 2004) and self-determination theory (Deci & Ryan, 2000) as "modern classics." More recent impulses for research on work motivation are frequently not inspired by practice – apart from the important influences of gamification and augmented reality – but rather from basic research on motivation. The investigation of implicit motives and volitional processes has been particularly fruitful here. New insights derived from such research are already being combined with integrative approaches of work motivation (cf. Barrick, Mount, & Li, 2013; Humphrey et al., 2007; Kehr, 2004b; Locke & Latham, 2013), discussed in textbooks with a practical focus (e.g., Weibler, 2016), and used as a basis for training (e.g., Kehr, 2011; Kehr & von Rosenstiel, 2006). The future will show if they will also have a practical impact.

Review Questions

1. What *is the importance of motivation for companies and their employees?*

   Employee motivation is an important variable in the workplace. It affects performance, determines job satisfaction and commitment, and ultimately determines the success of individual employees, teams, and entire organizations. Motivation is also a strategic key variable for the competition between organizations.

2. *What are the classic theories of employee motivation?*

   Theories discussed in this chapter:

   - Herzberg's two-factor theory
   - McClelland's need theory
   - Vroom's VIE theory
   - House and Mitchell's path-goal theory
   - Locke and Latham's goal-setting theory
   - Deci and Ryan's self-determination theory

   Other theories mentioned in the book, for example:

   - Maslow's hierarchy of needs and its further developments (e.g., Alderfer's ERG theory)
   - Atkinson's model of risk-taking behavior
   - Adams' equity theory

3. *Which two groups of factors does Herzberg specify in his two-factors theory? How are they related?*

   The two factors are motivators and hygiene factors. Fulfilled motivators (e.g., job satisfaction, acknowledgment, career opportunities) are satisfying and motivating. If these motivators are not fulfilled, employees are not satisfied but are also not automatically dissatisfied. Dissatisfaction is a result of unfulfilled hygiene factors (e.g., job security, physical work conditions, or income). If hygiene factors are fulfilled, the employee is not dissatisfied but also not automatically satisfied. Satisfaction and dissatisfaction are therefore independent of each other.

4. *What is, according to Herzberg, the motivational state of an employee who is neither dissatisfied nor satisfied? Which incentives would make the employee satisfied?*

   According to Herzberg, the employee is not demotivated but also not motivated. Thus, incentives should be given which can serve as motivators. These include opportunities for growth and promotion, appreciation and acknowledgment, responsibility, and challenging but manageable tasks.

5. *Which variables determine "motivational energy" in the VIE theory?*

   "Motivational energy" is determined by

   - The expectation (E) that the action in question can be realized successfully
   - The instrumentality (I) of this action for outcomes that individuals consider meaningful
   - The valence (V) of the anticipated action's consequences

   In the conceptualization of the VIE theory, these variables are independent of each other and need to be multiplied in order to predict motivation and behavior.

6. *Why is the practical usefulness of the VIE theory limited?*

   The practical usefulness of the VIE theory is rather limited because

   - The calculation of decisions is idiosyncratic. For individual employees, it is neither possible to predict how instrumentality, expectation, and valence will be weighted nor possible to predict what the outcome of their

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multiplication on the resulting motivation will be.

- The strictly rational calculation of motivation in decision making is not possible because other factors (e.g., emotions) are more influential than the three factors. Therefore, impulsive decisions often occur in practice which can neither be predicted nor explained by the multiplicative model of the VIE theory.
- The practical deductions and recommendations from the VIE theory are largely not based on empirical studies. Therefore, their effectiveness cannot be guaranteed.

7. *What are the claims of the path-goal theory?*
   The path-goal theory states that managers should support employees in identifying and successfully implementing the best possible ways of realizing their own goals. For this purpose, they should assess the employee's valences, instrumentalities, and expectations, and subsequently influence them in a way that causes them to form the desired intentions.

8. *Which mediators and moderators does the goal setting theory postulate? How do they work?*
   The most important mediators of goal realization are the willingness to expend effort, focus of attention, persistence, perceived self-efficacy, and the utilization of suitable task strategies. The first three mediators represent the classical components of motivation. Their presence has positive results on goal achievement. According to goal-setting theory, perceived self-efficacy directly influences these motivational factors as well as the goal setting itself. Accordingly, it has a central role in goal setting and goal achievement. However, its influence is not linear in terms of a simple "more is better." Lastly, task strategies can be characterized as resources and problem-solving instruments, which have a positive influence on goal achievement once goal difficulty and motivation are set.
   The most important moderators identified are commitment, abilities, feedback, situational restrictions, and task complexity. Their existence has a positive influence on goal setting. However, regarding the influence of task complexity, further moderators are discussed which suggest a nonlinear influence on goal achievement.

9. *Which three basic needs are at the core of the self-determination theory?*
   The three basic needs of self-determination theory are autonomy, competence, and relatedness.

10. *What is "internalization" according to the self-determination theory?*
    Internalization is the process of integrating originally external action goals. In the context of the organismic integration theory, four types of extrinsic behavioral regulation are distinguished: external regulation, introjected regulation, identified regulation, and integrated regulation. According to self-determination theory, the last two are dimensions of autonomous motivation.

11. *Why does the self-determination theory not yet meet the requirements for a comprehensive theory of work motivation?*
    Self-determination theory does not yet meet the requirements for a comprehensive theory of work motivation because (until now) it has only demonstrated the influence of autonomous motivation on work motivation; the differential effect of the various kinds of autonomous and controlled motivations has not yet been demonstrated. Furthermore, the theory has

mainly been validated in laboratory and academic contexts. A thorough validation in the work context is still missing.

12. *What are the methodological weaknesses of the self-determination theory?*
    - Using the common tools to investigate different theory-based types of motivation, differences between integrated and intrinsic motivation cannot empirically be made, although a clear theoretical difference exists.
    - The contribution of controlled motivation types in various work-related variables is very low. This puts into question the postulated role of controlled motivation in work contexts.
    - Specificity of the investigations: The theory has mostly been tested in laboratories or in school contexts and is accordingly best validated for academic institutions and their characteristics.

13. *What are the structural components and functional mechanisms of the 3K model? How are they related?*

    The 3C-model postulates three structural motivational components that can be conceptualized on distal and proximal levels. On the distal level, the components are implicit and explicit motives and subjective abilities; on the proximal level, they are affective and cognitive preferences and scripted behavior. The three components are represented as three partially overlapping circles to indicate that the components can be consistent with each other but do not have to be. The functional mechanisms are volition and problem-solving. They are required to compensate for insufficient motivation (volition) and insufficient abilities (problem-solving).

14. *What is the difference between latent and manifest intrinsic motivation in the 3K model?*

    Latent intrinsic motivation occurs when implicit and explicit motives correspond on the distal level. Manifest intrinsic motivation occurs when cognitive and affective behavioral preferences correspond on the proximal level.

15. *What is the difference between distal and proximal motivational constructs?*

    Distal and proximal motivational constructs are distinguished with regard to their behavioral proximity to the motivational construct, where the proximal motivational construct is closer to the actual behavior than the distal one. An example for a distal motivational construct is the implicit power motive. The corresponding proximal indicator would be, e.g., positive emotions when engaging in power-related activities.

16. *A colleague has been underperforming for a while. She has been lethargic, despondent, and inefficient. You assume that a "motivational problem" is the reason for the changes. How can you use the 3K model to test your assumption and potentially help your colleague?*

    In practice, a systematic diagnosis with the so-called 3C-check is recommended. The three structural components of motivation (head, heart, and hand) are checked with regard to concrete activities.

    Key questions:
    - Does the employee enjoy the activity? (heart, implicit motives, affective preferences)
    - Does the employee think that the activity assigned to her is important? (head, explicit motives, cognitive preferences)

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- Does the employee believe she has the required skills to perform the activity well? (hand, scripted behavior, subjective abilities)

17. *Based on the 3K model, how would you motivate an employee who thinks his work is important and possess the required skills to complete it, but feels afraid and weary when thinking about work?*

    On a proximal level, the employee is lacking the necessary affective preferences to perform the activity with motivation. Affective preferences can be achieved, for instance, through motive-congruent incentives or a motive-congruent redesign of the task. Other possibilities are reframing the activity or forming a compelling, motive-stimulating vision of the activity.

18. *How do older and younger employees differ with regard to aspects of their motivation?*
    - Older employees place more value on intrinsic work-related incentives.
    - Younger employees place more importance on social relationships at work.
    - Older employees' motives shift to passing on of experience (generativity).
    - Older employees generally have higher volitional and motivational competencies.

19. *What are the explanations for the motivational effect of gamification in the workplace?*

    There are various approaches to explain the motivational effects of gamification in a work context. According to Cardador et al. (2016), affective and information-based processes play a role: playing creates positive emotions in players through their ability to complete tasks and to approach their own goals or the goals of others (affective process). Additionally, there is an increase of the availability of performance-related information (information-based process). According to Sailer et al. (2016), gamification addresses the three big motives: achievement, through the indicators of performance-relevant parameters and progress; power, through the winner's reputation and the display of progress; and affiliation, through the establishment of teams and new groups.

    An empirical test of these approaches has not yet been conducted.

20. *Why can visions motivate more strongly than "conventional" goals?*

    Visions distinguish themselves in comparison to goals through a higher pictorial quality. Because mental images activate implicit motives, visions are able to generate affective preferences over concrete images. This facilitates the decision of whether the vision will be pursued wholeheartedly (i.e., with the support of own implicit motives). Nonpictorial goals render access to the implicit motive system more difficult.

References

Ach, N. K. (1935). Analyse des Willens. In E. Abderhalden (Ed.), *Handbuch der biologischen Arbeitsmethoden*. Wien, Austria: Urban & Schwarzenberg.

Adams, J. S. (1965). Inequity in social exchange. *Advances in Experimental Social Psychology, 2*, 267–299. https://doi.org/10.1016/S0065-2601(08)60108-2

Amann, D. G. (2014). Transformational leadership meets follower motives: Compatibility of dimensions of transformational leadership and follower motives determines work-related outcomes. (Dissertation Technische Universität München). Zugriff unter http://mediatum.ub.tum.de?id=1227177

Azuma, R. T. (1997). A survey of augmented reality. *Presence Teleoperators and Virtual Environments, 6*, 355–385. https://doi.org/10.1162/pres.1997.6.4.355

Bakker, A. B., Demerouti, E., & Euwema, M. C. (2005). Job resources buffer the impact of job demands on burnout. *Journal of Occupational Health Psychology, 10*, 170–180. https://doi.org/10.1037/1076-8998.10.2.170

Barrick, M. R., Mount, M. K., & Li, N. (2013). The theory of purposeful work behavior: The role of personality, higher-order goals, and job characteristics. *Academy of Management Review, 38*, 132–153. https://doi.org/10.5465/amr.2010.0479

Baumeister, R. F., Muraven, M., & Tice, D. M. (2000). Ego depletion: A resource model of volition, self-regulation, and controlled processing. *Social Cognition, 18*, 130–150. https://doi.org/10.1521/soco.2000.18.2.130

Bimber, O., & Raskar, R. (2005). *Spatial augmented reality: Merging real and virtual worlds*. Norwood, MA: CRC.

Blessin, B., & Wick, A. (2013). *Führen und führen lassen* (7th ed.). Konstanz, Germany: UTB.

Bockman, V. M. (1971). The Herzberg controversy. *Personnel Psychology, 24*, 155–189. https://doi.org/10.1111/j.1744-6570.1971.tb02470.x

Brunstein, J. C., Schultheiss, O. C., & Grässman, R. (1998). Personal goals and emotional well-being: The moderating role of motive dispositions. *Journal of Personality and Social Psychology, 75*, 494–508. https://doi.org/10.1037/0022-3514.75.2.494

Burton, K. D., Lydon, J. E., D'Alessandro, D. U., & Koestner, R. (2006). The differential effects of intrinsic and identified motivation on well-being and performance: Prospective, experimental, and implicit approaches to self-determination theory. *Journal of Personality and Social Psychology, 91*, 750–762. https://doi.org/10.1037/0022-3514.91.4.750

Cardador, M. T., Northcraft, G. B., & Whicker, J. (2016). A theory of work gamification: Something old, something new, something borrowed, something cool? *Human Resource Management Review*. https://doi.org/10.1016/j.hrmr.2016.09.014

Carver, C. S., & Scheier, M. F. (1982). Control theory: A useful conceptual framework for personality-social, clinical, and health psychology. *Psychological Bulletin, 92*, 111–135. https://doi.org/10.1037/0033-2909.92.1.111

Carver, C. S., & Scheier, M. F. (2012). *Attention and self-regulation: A control-theory approach to human behavior*, *SSSP Springer Series in Social Psychology*. Heidelberg, Germany: Springer.

Cerasoli, C. P., Nicklin, J. M., & Ford, M. T. (2014). Intrinsic motivation and extrinsic incentives jointly predict performance: A 40-year meta-analysis. *Psychological Bulletin, 140*, 980–1008. https://doi.org/10.1037/a0035661

Chen, H. (2006). Flow on the net–detecting Web users' positive affects and their flow states. *Computers in Human Behavior, 22*, 221–233. https://doi.org/10.1016/j.chb.2004.07.001

Csikszentmihalyi, M. (1991). Das Flow-Erlebnis und seine Bedeutung für die Psychologie des Menschen. In M. Csikszentmihalyi & I. S. Csikszentmihalyi (Eds.), *Die außergewöhnliche Erfahrung im Alltag. Die Psychologie des Flow-Erlebens* (pp. 29–49). Stuttgart, Germany: Klett-Cotta.

Csikszentmihalyi, M. (2000). *Beyond boredom and anxiety: The experience of play in work and games*. San Francisco: Jossey-Bass.

Deci, E. L., & Ryan, R. M. (1985). The general causality orientations scale: Self-determination in personality. *Journal of Research in Personality, 19*, 109–134. https://doi.org/10.1016/0092-6566(85)90023-6

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11*, 227–268. https://doi.org/10.1207/S15327965PLI1104_01

Deci, E. L., & Ryan, R. M. (2008). Facilitating optimal motivation and psychological well-being across life's domains. *Canadian Psychology/Psychologie Canadienne, 49*, 14–23. https://doi.org/10.1037/0708-5591.49.1.14

Deterding, S., Dixon, D., Khaled, R., & Nacke, L. (2011). From game design elements to gamefulness: Defining gamification. In *Proceedings of the 15th international academic MindTrek conference: Envisioning future media environments* (pp. 9–15). ACM. doi:https://doi.org/10.1145/2181037.2181040

Dijksterhuis, A. (2004). Think different: The merits of unconscious thought in preference development and decision making. *Journal of Personality and Social Psychology, 87*, 586–598. https://doi.org/10.1037/0022-3514.87.5.586

Dörner, D., & Schaub, H. (1994). Errors in planning and decision-making and the nature of human information processing. *Applied Psychology, 43*, 433–453. https://doi.org/10.1111/j.1464-0597.1994.tb00839.x

Earley, P. C., Connolly, T., & Ekegren, G. (1989). Goals, strategy development, and task performance: Some limits on the efficacy of goal setting. *Journal of Applied Psychology, 74*, 24–33. https://doi.org/10.1037/0021-9010.74.1.24

EY. (2015). EY Jobstudie 2015 – Motivation, Gehalt und Arbeitszufriedenheit. Zugriff unter http://www.ey.com/DE/de/Newsroom/News-releases/EY-20150910-Generation-60-plus-arbeitet-am-engagiertesten

Flanagan, J. C. (1954). The critical incident technique. *Psychological Bulletin, 51*, 327–358. https://doi.org/10.1037/h0061470

Frese, M., & Zapf, D. (1990). Action as the core of work psychology: A German approach. In H. C. Triandis, M. D. Dunnette, & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (2nd ed., pp. 271–340). Palo Alto, CA: Consulting Psychologists.

Gagné, M. (2003). The role of autonomy support and autonomy orientation in prosocial behavior engagement. *Motivation and Emotion, 27*, 199–223. https://doi.org/10.1023/A:1025007614869

Gagné, M., & Deci, E. L. (2005). Self-determination theory and work motivation. *Journal of Organizational Behavior, 26*, 331–362. https://doi.org/10.1002/job.322

Gagné, M., Forest, J., Gilbert, M.-H., Aubé, C., Morin, E., & Malorni, A. (2010). The motivation at work scale: Validation evidence in two languages. *Educational and Psychological Measurement, 70*, 628–646. https://doi.org/10.1177/0013164409355698

Gagné, M., Forest, J., Vansteenkiste, M., Crevier-Braud, L., van den Broeck, A., Aspeli, A. K., … Westbye, C. (2015). The multidimensional work motivation scale: Validation evidence in seven languages and nine countries. *European Journal of Work and Organizational Psychology, 24*, 178–196. doi:https://doi.org/10.1080/1359432X.2013.877892

Georgopoulos, B. S., Mahoney, G. M., & Jones, N. W., Jr. (1957). A path-goal approach to productivity. *Journal of Applied Psychology, 41*, 345–353. https://doi.org/10.1037/h0048473

Gollwitzer, P. M. (1990). Action phases and mind-sets. In E. T. Higgins & R. M. Sorrentino (Eds.), *Handbook of motivation and cognition. Foundations of social behavior* (2nd ed., pp. 53–92). New York: Guilford.

Gollwitzer, P. M., & Moskowitz, G. B. (1996). Goal effects on action and cognition. In A. W. Kruglanski & E. T. Higgins (Eds.), *Social psychology. Handbook of basic principles* (2nd ed., pp. 361–399). New York: Guilford.

Gröpel, P., & Kehr, H. M. (2014). Motivation and self-control: Implicit motives moderate the exertion of self-control in motive-related tasks. *Journal of Personality, 82*, 317–328. https://doi.org/10.1111/jopy.12059

Güntert, S. T. (2015). The impact of work design, autonomy support, and strategy on employee outcomes: A differentiated perspective on self-determination at work. *Motivation and Emotion, 39*, 74–87. https://doi.org/10.1007/s11031-014-9412-7

Hackman, J. R., & Oldham, G. R. (1980). *Work redesign*. Reading, MA: Addison Wesley.

Haggard, P. (2008). Human volition: Towards a neuroscience of will. *Nature Reviews Neuroscience, 9*(12), 934–946. https://doi.org/10.1038/nrn2497

Hagger, M. S., Wood, C., Stiff, C., & Chatzisarantis, N. L. D. (2010). Ego depletion and the strength model of self-control: A meta-analysis. *Psychological Bulletin, 136*, 495–525. https://doi.org/10.1037/a0019486

Hajas, V. (2013). Motivationale Effekte von Unternehmensvisionen. (Dissertation Technische Universität München). Zugriff unter http://mediatum.ub.tum.de?id=1166608

Hamari, J. (2015). Do badges increase user activity? A field experiment on the effects of gamification. *Computers in Human Behavior*. https://doi.org/10.1016/j.chb.2015.03.036

Hamari, J., Koivisto, J., & Sarsa, H. (2014). Does gamification work? A literature review of empirical studies on gamification. In *IEEE 8th international symposium on Service-Oriented System Engineering (SOSE)* (pp. 3025–3034). Piscataway, NJ: IEEE. doi:https://doi.org/10.1109/HICSS.2014.377

Hamari, J., Shernoff, D. J., Rowe, E., Coller, B., Asbell-Clarke, J., & Edwards, T. (2016). Challenging games help students learn: An empirical study on engagement, flow and immersion in game-based learning. *Computers in Human Behavior, 54*, 170–179. https://doi.org/10.1016/j.chb.2015.07.045

Heckhausen, H., & Gollwitzer, P. M. (1987). Thought contents and cognitive functioning in motivational versus volitional states of mind. *Motivation and Emotion, 11*, 101–120. https://doi.org/10.1007/BF00992338

Hersey, P., & Blanchard, K. H. (1969). *Management of organizational behavior: Utilizing human resources*. Englewood Cliffs, NJ: Prentice-Hall.

Herzberg, F. (1966). *Work and the nature of man*. Oxford, UK: World.

Herzberg, F. (1976). *The managerial choice: To be efficient and to be human*. Homewood, IL: Irwin.

Herzberg, F., Mausner, B., & Snyderman, B. B. (1959). *The motivation to work*. New York: Wiley.

Hillgruber, A. (1912). *Fortlaufende Arbeit und Willensbetätigung*. Leipzig, Germany: Quelle & Meyer.

House, R. J. (1996). Path-goal theory of leadership: Lessons, legacy, and a reformulated theory. *The Leadership Quarterly, 7*, 323–352. https://doi.org/10.1016/S1048-9843(96)90024-7

House, R. J., & Mitchell, T. R. (1974). Path-goal theory of leadership. *Journal of Contemporary Business, 3*, 81–97. Zugriff unter http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA009513

House, R. J., & Shamir, B. (1993). Toward the integration of transformational, charismatic, and visionary theories. In M. M. Chemers & R. Ayman Roya (Eds.), *Leadership theory and research. Perspectives and directions* (pp. 81–107). San Diego, CA: Academic.

Hsu, C.-L., & Lu, H.-P. (2004). Why do people play online games? An extended TAM with social influences and flow experience. *Information Management, 41*, 853–868. https://doi.org/10.1016/j.im.2003.08.014

Humphrey, S. E., Nahrgang, J. D., & Morgeson, F. P. (2007). Integrating motivational, social, and contextual work design features: A meta-analytic summary and theoretical extension of the work design literature. *Journal of Applied Psychology, 92*, 1332–1356. https://doi.org/10.1037/0021-9010.92.5.1332

Isaac, R. G., Zerbe, W. J., & Pitt, D. C. (2001). Leadership and motivation: The effective application of expectancy theory. *Journal of Managerial Issues, 13*, 212–226. Zugriff unter http://www.jstor.org/stable/40604345

Jenkins, G. D., Mitra, A., Gupta, N., Shaw, J. D., Jenkins, G. D., & JR. (1998). Are financial incentives related to performance? A meta-analytic review of empirical research. *Journal of Applied Psychology, 83*, 777–787. https://doi.org/10.1037/0021-9010.83.5.777

Judge, T. A., & Church, A. H. (2000). Job satisfaction: Research and practice. In C. L. Cooper & E. A. Locke (Eds.), *Industrial and organizational psychology. Linking theory with practice* (pp. 166–198). Oxford, UK: Blackwell.

Kanfer, R. (1990). Motivation theory and industrial and organizational psychology. In H. C. Triandis, M. D. Dunnette, & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (2nd ed., pp. 75–170). Palo Alto, CA: Consulting Psychologists.

Kanfer, R., & Ackerman, P. L. (2004). Aging, adult development, and work motivation. *Academy of Management Review, 29*, 440–458. https://doi.org/10.5465/AMR.2004.13670969

Kanfer, R., Chen, G., & Pritchard, R. D. (2012). *Work motivation: Past, present and future. The organizational frontiers series*. New York: Routledge.

Kanfer, R., & Heggestad, E. D. (1997). Motivational traits and skills: A person-centered approach to work motivation. *Research in Organizational Behavior, 19*, 1–56.

Kapp, K. M. (2012). *The gamification of learning and instruction: Game-based methods and strategies for training and education*. Hoboken, NJ: Wiley.

Kashdan, T. B., Julian, T., Merritt, K., & Uswatte, G. (2006). Social anxiety and posttraumatic stress in combat veterans: Relations to well-being and character strengths. *Behaviour Research and Therapy, 44*, 561–583. https://doi.org/10.1016/j.brat.2005.03.010

Kehr, H. M. (1999). Entwurf eines konfliktorientierten Prozessmodells von Motivation und Volition. *Psychologische Beiträge, 41*, 20–43.

Kehr, H. M. (2004a). Implicit/explicit motive discrepancies and volitional depletion among managers. *Personality and Social Psychology Bulletin, 30*, 315–327. https://doi.org/10.1177/0146167203256967

Kehr, H. M. (2004b). Integrating implicit motives, explicit motives, and perceived abilities: The compensatory model of work motivation and volition. *Academy of Management Review, 29*, 479–499. https://doi.org/10.5465/AMR.2004.13670963

Kehr, H. M. (2004c). *Motivation und Volition: Funktionsanalysen, Feldstudien mit Führungskräften und Entwicklung eines Selbstmanagement-Trainings (SMT)*. Göttingen, Germany: Hogrefe.

Kehr, H. M. (2005). Implicit fear motives and volitional depletion among managers. 9. European Congress of Psychology, Granada, Spain.

Kehr, H. M. (2008). *Authentisches Selbstmanagement: Übungen zur Steigerung von Motivation und Willensstärke*. Weinheim, Germany: Beltz.

Kehr, H. M. (2011). Führung durch Motivation: Implizite Motive, explizite Ziele und die Steigerung der Willenskraft. *Personalführung, 4*, 66–71. Zugriff unter http://www.dgfp.de/wissen/magazin/vorherige-ausgaben

Kehr, H. M. (2014). Das 3K-Modell der motivation. In J. Felfe (Ed.), *Psychologie für das Personalmanagement: Bd. 27. Trends der psychologischen Führungsforschung. Neue Konzepte, Methoden und Erkenntnisse* (pp. 103–116). Göttingen, Germany: Hogrefe.

Kehr, H. M., Amann, D. G., & Giessner, S. (2016). Transformational leadership meets follower motives: Compatibility of dimensions of transformational leadership and follower motives determines work-related outcomes. Potsdam Leadership Symposium, Potsdam, Germany.

Kehr, H. M., & Rawolle, M. (2009). Kopf, Bauch und Hand – wie Motivation Veränderungsprozesse unterstützt. *Wirtschaftspsychologie Aktuell, 2*, 23–26. Zugriff unter http://www.wirtschaftspsychologie-aktuell.de/heft2_2009.html

Kehr, H. M., & von Rosenstiel, L. (2006). Self-Management Training (SMT): Theoretical and empirical foundations for the development of a metamotivational and metavolitional intervention program. In D. H. Frey, H. Mandl, & L. von Rosenstiel (Eds.), *Knowledge and action* (pp. 103–141). Cambridge, MA: Huber & Hogrefe.

Kelley, H. H., & Michela, J. L. (1980). Attribution theory and research. *Annual Review of Psychology, 31*, 457–501. https://doi.org/10.1146/annurev.ps.31.020180.002325

Kleinbeck, U., & Schmidt, K.-H. (1996). Die Wirkung von Zielsetzungen auf das Handeln. In H. Heckhausen & J. Kuhl (Eds.), *Enzyklopädie der Psychologie: Bd. 4. Motivation, Volition und Handlung* (pp. 875–907). Göttingen, Germany: Hogrefe.

Kooij, D. T., de Lange, A. H., Jansen, P. G. W., Kanfer, R., & Dikkers, J. S. E. (2011). Age and work-related motives: Results of a meta-analysis. *Journal of Organizational Behavior, 32*, 197–225. https://doi.org/10.1002/job.665

Kuhl, J. (1996). Wille und Freiheitserleben: Formen der Selbststeuerung. In H. Heckhausen & J. Kuhl (Eds.), *Enzyklopädie der Psychologie: Bd. 4. Motivation, Volition und Handlung* (pp. 665–765). Göttingen, Germany: Hogrefe.

Kuhl, J. (2000). The volitional basis of personality systems interaction theory: Applications in learning and treatment contexts. *International Journal of Educational Research, 33*, 665–703. https://doi.org/10.1016/S0883-0355(00)00045-8

Kuhl, J., & Fuhrmann, A. (1998). Decomposing self-regulation and self-control: The volitional components inventory. In J. Heckhausen & C. S. Dweck (Eds.), *Motivation and self-regulation across the life span* (pp. 15–49). Cambridge, UK: Cambridge University Press. https://doi.org/10.1017/CBO9780511527869.003

Labouvie-Vief, G. (2003). Dynamic integration: Affect, cognition, and the self in adulthood. *Current Directions in Psychological Science, 12*, 201–206. https://doi.org/10.1046/j.0963-7214.2003.01262.x

Lang, J. W. B., Zettler, I., Ewen, C., & Hülsheger, U. R. (2012). Implicit motives, explicit traits, and task and contextual performance at work. *Journal of Applied Psychology, 97*, 1201–1217. https://doi.org/10.1037/a0029556

Latham, G. P. (2012). *Work motivation: History, theory, research, and practice* (2nd ed.). Thousand Oaks, CA: Sage.

Latham, G. P., & Locke, E. A. (1991). Self-regulation through goal setting. *Organizational Behavior and Human Decision Processes, 50*, 212–247. https://doi.org/10.1016/0749-5978(91)90021-K

Latham, G. P., & Locke, E. A. (2007). New developments in and directions for goal-setting research. *European Psychologist, 12*, 290–300. https://doi.org/10.1027/1016-9040.12.4.290

Latham, G. P., Stajkovic, A. D., & Locke, E. A. (2010). The relevance and viability of subconscious goals in the workplace. *Journal of Management, 36*, 234–255. https://doi.org/10.1177/0149206309350777

Locke, E. A. (1968). Toward a theory of task motivation and incentives. *Organizational Behavior and Human Performance, 3*, 157–189. https://doi.org/10.1016/0030-5073(68)90004-4

Locke, E. A., & Kristof, A. L. (1996). Volitional choices in the goal achievement process. In P. M. Gollwitzer & J. A. Bargh (Eds.), *The psychology of action. Linking cognition and motivation to behavior* (pp. 365–384). New York: Guilford.

Locke, E. A., & Latham, G. P. (1979). Goal setting – a motivational technique that works. *Organizational Dynamics, 8*, 68–80. https://doi.org/10.1016/0090-2616(79)90032-9

Locke, E. A., & Latham, G. P. (1990). *A theory of goal setting & task performance*. Englewood Cliffs, NJ: Prentice-Hall.

Locke, E. A., & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American Psychologist, 57*, 705–717. https://doi.org/10.1037/0003-066X.57.9.705

Locke, E. A., & Latham, G. P. (2004). What should we do about motivation theory? Six recommendations for the twenty-first century. *Academy of Management Review, 29*, 388–403. https://doi.org/10.5465/AMR.2004.13670974

Locke, E. A., & Latham, G. P. (2013). *New developments in goal setting and task performance*. New York: Routledge.

Locke, E. A., Shaw, K. N., Saari, L. M., & Latham, G. P. (1981). Goal setting and task performance: 1969–1980. *Psychological Bulletin, 90*, 125–152. https://doi.org/10.1037/0033-2909.90.1.125

Lu, Y., Zhou, T., & Wang, B. (2009). Exploring Chinese users' acceptance of instant messaging using the theory of planned behavior, the technology acceptance model, and the flow theory. *Computers in Human Behavior, 25*, 29–39. https://doi.org/10.1016/j.chb.2008.06.002

Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology, 52*, 397–422. https://doi.org/10.1146/annurev.psych.52.1.397

Maslow, A. H. (1943). A theory of human motivation. *Psychological Review, 50*, 370–396. https://doi.org/10.1037/h0054346

McClelland, D. C. (1985). How motives, skills, and values determine what people do. *American Psychologist, 40*, 812–825. https://doi.org/10.1037/0003-066X.40.7.812

McClelland, D. C. (1995). Scientific psychology as a social enterprise. (unpubliziertes Manuskript).

McClelland, D. C., Koestner, R., & Weinberger, J. (1989). How do self-attributed and implicit motives differ? *Psychological Review, 96*, 690–702. https://doi.org/10.1037/0033-295X.96.4.690

Miner, J. B. (2015). *Organizational behavior 1: Essential theories of motivation and leadership*. New York: Routledge.

Muraven, M., & Baumeister, R. F. (2000). Self-regulation and depletion of limited resources: Does self-control resemble a muscle? *Psychological Bulletin, 126*, 247–259. https://doi.org/10.1037/0033-2909.126.2.247

Murray, H. A. (1938). *Explorations in personality*. Oxford, UK: Oxford University Press.

Nanus, B. (1992). *Visionary leadership: Creating a compelling sense of direction for your organization*. San Francisco: Jossey-Bass.

Ng, T. W. H., & Feldman, D. C. (2010). The relationships of age with job attitudes: A meta-analysis. *Personnel Psychology, 63*, 677–718. https://doi.org/10.1111/j.1744-6570.2010.01184.x

Nink, M. (2014). *Engagement-Index: Die neuesten Daten und Erkenntnisse aus 13 Jahren Gallup-Studie*. München, Germany: Redline.

Northouse, P. G. (2015). *Leadership: Theory and practice* (7th ed.). Los Angeles: Sage.

Organisation for Economic Cooperation and Development (2015). Ageing and employment policies. Zugriff unter: http://www.oecd.org/employment/ageingandemploymentpolicies.htm

Pinder, C. C. (2008). *Work motivation in organizational behavior* (2nd ed.). Washington, DC: Psychology.

Posthuma, R. A., & Campion, M. A. (2009). Age stereotypes in the workplace: Common stereotypes, moderators, and future research directions. *Journal of Management, 35*, 158–188. https://doi.org/10.1177/0149206308318617

Rand, A., & Branden, N. (1964). *The virtue of selfishness: A new concept of egoism*. New York: Signet.

Rawolle, M., Kehr, H. M., & Glaser, J. (2007). Why self-set goals may sometimes be nonmotivating. In C. Wankel (Ed.), *21. Century management. A reference handbook* (pp. 203–210). Los Angeles: Sage.

Rawolle, M., Schultheiss, O. C., Strasser, A., & Kehr, H. M. (2016). The motivating power of visionary images: Effects on motivation, affect, and behavior. *Journal of Personality. Advance Online Publication*. https://doi.org/10.1111/jopy.12285

Rhodes, S. R. (1983). Age-related differences in work attitudes and behavior: A review and conceptual analysis. *Psychological Bulletin, 93*, 328–367. https://doi.org/10.1037/0033-2909.93.2.328

Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology, 25*, 54–67. https://doi.org/10.1006/ceps.1999.1020

Sachau, D. A. (2007). Resurrecting the motivation-hygiene theory: Herzberg and the positive psychology movement. *Human Resource Development Review, 6*, 377–393. https://doi.org/10.1177/1534484307307546

Sailer, M., Hense, J., Mandl, H., & Klevers, M. (2013). Psychological perspectives on motivation through gamification. *Interaction Design & Architecture(s), 19*, 28–37. Zugriff unter http://www.mifav.uniroma2.it/inevent/events/idea2010/doc/19_2.pdf

Schattke, K., Brandstätter, V., Taylor, G., & Kehr, H. M. (2014). Flow on the rocks: Motive-incentive congruence enhances flow in rock climbing. *International Journal of Sport Psychology, 45*, 603–620. https://doi.org/10.7352/IJSP.2014.45.603

Schattke, K., Seeliger, J., Schiepe-Tiska, A., & Kehr, H. M. (2012). Activity-related incentives as motivators in open innovation communities. *International Journal of Knowledge-Based Organizations (IJKBO), 2*, 21–37. https://doi.org/10.4018/ijkbo.2012010102

Schiepe-Tiska, A., Schattke, K., & Kehr, H. M. (2016). *Flow in open innovation: A test of the predictive power of the compensatory model of motivation*. Manuskript eingereicht zur Publikation.

Schmalstieg, D., & Hollerer, T. (2016). *Augmented reality: Principles and practice*. Boston: Addison-Wesley.

Schmidt, K. H., & Kleinbeck, U. (2006). *Führen mit Zielvereinbarung*. Göttingen, Germany: Hogrefe.

Schmidt, K.-H., & Kleinbeck, U. (1999). Funktionsgrundlagen der Leistungswirkungen von Zielen bei der Arbeit. In M. Jerusalem & R. Pekrun (Eds.), *Emotion, Motivation und Leistung* (pp. 291–304). Göttingen, Germany: Hogrefe.

Schüler, J., Brandstätter, V., & Sheldon, K. M. (2013). Do implicit motives and basic psychological needs interact to predict well-being and flow? Testing a universal hypothesis and a matching hypothesis. *Motivation and Emotion, 37*, 480–495. https://doi.org/10.1007/s11031-012-9317-2

Schweitzer, M. E., Ordóñez, L., & Douma, B. (2004). Goal setting as a motivator of unethical behavior. *Academy of Management Journal, 47*, 422–432. https://doi.org/10.2307/20159591

Slovic, P., Finucane, M. L., Peters, E., & MacGregor, D. G. (2007). The affect heuristic. *European Journal of Operational Research, 177*, 1333–1352. https://doi.org/10.1016/j.ejor.2005.04.006

Sokolowski, K. (1997). Sequentielle und imperative Konzepte des Willens. *Psychologische Beiträge, 39*, 346–369. Zugriff unter http://www.bildung.uni-siegen.de/mitarbeiter/sokolowski/publikationen/soko_psychbeitr_1997.pdf

Srivastava, A., Locke, E. A., & Bartol, K. M. (2001). Money and subjective well-being: It's not the money, it's the motives. *Journal of Personality and Social Psychology, 80*, 959–971. https://doi.org/10.1037/0022-3514.80.6.959

Steers, R. M., Mowday, R. T., & Shapiro, D. L. (2004). Introduction to special topic forum: The future of work motivation theory. *The Academy of Management Review, 29*, 379–387. https://doi.org/10.2307/20159049

Strasser, A., Rawolle, M., & Kehr, H. M. (2011). Wie Visionen wirken – Wissenschaftler untersuchen Motivation durch mentale Bilder. *Wirtschaftspsychologie Aktuell, 2*, 9–13.

Strasser, M., & Kehr, H. M. (2012). Motivation gezielt fördern. *Coaching-Magazin, 13*, 38–41. Zugriff unter http://www.coaching-magazin.de/archiv/2012/rauen_coaching-magazin_2012-01.pdf

Thrash, T. M., Elliot, A. J., & Schultheiss, O. C. (2007). Methodological and dispositional predictors of congruence between implicit and explicit need for achievement. *Personality and Social Psychology Bulletin, 33*, 961–974. https://doi.org/10.1177/0146167207301018

Trapp, J. K., & Kehr, H. M. (2016). How the influence of the implicit power motive on negotiation performance can be neutralized by a conflicting explicit affiliation motive. *Personality and Individual Differences, 94*, 159–162. https://doi.org/10.1016/j.paid.2015.12.036

Tyler, T. R., & Lind, E. A. (2002). Procedural justice. In J. Sanders & V. L. Hamilton (Eds.), *Handbook of justice research in law* (pp. 65–92). New York: Kluwer.

Vallerand, R. J. (1997). Toward a hierarchical model of intrinsic and extrinsic motivation. *Advances in Experimental Social Psychology, 29*, 271–360. https://doi.org/10.1016/S0065-2601(08)60019-2

van Eerde, W., & Thierry, H. (1996). Vroom's expectancy models and work-related criteria: A meta-analysis. *Journal of Applied Psychology, 81*, 575–586. https://doi.org/10.1037/0021-9010.81.5.575

van Krevelen, D. W., & Poelman, R. (2010). A survey of augmented reality technologies, applications and limitations. *The International Journal of Virtual Reality, 9*, 1–20. Zugriff unter http://www.ijvr.org/web/search/singleArticle/32

von Rosenstiel, L., Kehr, H. M., & Maier, G. W. (2000). Motivation and volition in pursuing personal work goals. In J. Heckhausen (Ed.), *Motivational psychology of human development: Developing motivation and motivating development* (pp. 287–305). Amsterdam: Elsevier. https://doi.org/10.1016/s0166-4115(00)80017-5

Vroom, V. H. (1964). *Work and motivation*. Oxford, UK: Wiley.

Webster, J., Trevino, L. K., & Ryan, L. (1993). The dimensionality and correlates of flow in human-computer interactions. *Computers in Human Behavior, 9*, 411–426. https://doi.org/10.1016/0747-5632(93)90032-N

Weibler, J. (2016). *Personalführung* (2nd ed.). München, Germany: Vahlen.

Weiner, B. (1985). An attributional theory of achievement motivation and emotion. *Psychological Review, 92*, 548–573. https://doi.org/10.1037/0033-295X.92.4.548

Werbach, K., & Hunter, D. (2012). *For the win: How game thinking can revolutionize your business*. Philadelphia: Wharton.

Winter, D. G., John, O. P., Stewart, A. J., Klohnen, E. C., & Duncan, L. E. (1998). Traits and motives: Toward an integration of two traditions in personality research. *Psychological Review, 105*, 230–250. https://doi.org/10.1037/0033-295X.105.2.230

Wood, R. E., & Locke, E. A. (1990). Goal-setting and strategy effects on complex tasks. *Research in Organizational Behavior, 12*, 73–109.

Wundt, W. M. (1896). *Grundriß der Psychologie*. Leipzig, Germany: Engelmann.

Organisation for Economic Cooperation and Development (2006). OECD Factbook 2006. OECD database.