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The gain spiral of resources and work engagement: Sustaining a positive worklife

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People try to acquire resources at work which they value such as autonomy, social relationships, and feedback about their performance. These job resources are functional in achieving work goals and may stimulate personal growth, learning, and development. As such, job resources initiate a motivational process that may lead to work engagement and positive organizational outcomes, including enhanced performance (Bakker & Demerouti, 2008; Schaufeli & Bakker, 2004). This premise is consistent with traditional motivational approaches such as job characteristics theory (Hackman & Oldham, 1980) and self-determination theory (Ryan & Deci, 2000). According to the former approach, particular job

characteristics such as skill variety, autonomy, and feedback have motivating potential and indirectly predict positive outcomes like intrinsic motivation (a concept closely related to work engagement), through the activation of positive psychological states. In a somewhat similar vein, self-determination theory posits that job resources are motivating because they fulfill basic human needs, such as the needs for autonomy, competence, and relatedness. Consequently, work contexts that provide resources such as job control (autonomy), feedback (competence), and social support (relatedness) would enhance well-being and increase intrinsic satisfaction at work (Ryan & Frederick, 1997).

Although these approaches are of great significance for understanding the psychological processes underlying work engagement, they are rather restrictive, because they are one-directional and do not take reciprocal causation into account. Reciprocal causation is plausible because we are dealing with dynamic processes that unfold over time. Therefore, it is important to understand sequences of psychosocial experiences and behaviors that explain work engagement, rather than isolated episodes. In other words, it would be an important step forward to identify the underlying dynamic motivational process that links various types of resources with engagement, and to comprehend how resources and engagement develop over time. This notion alludes to the concept of gain spirals.

Gain spirals are defined as amplifying loops in which cyclic relationships among constructs build on each other positively over time (Lindsay, Brass, & Thomas, 1995). In the present chapter, we will exclusively focus on gain spirals related to resources and engagement. For a gain spiral to exist, two conditions should be met: (1) normal and reversed causation (this is also called a reciprocal relationship); i.e., $A \rightarrow B$ and $B \rightarrow A$; and (2) an increase in levels over time; i.e., $A_{T1} > A_{T2}$ and $B_{T1} > B_{T2}$. Put differently, empirical evidence on reciprocal relationships and on changes over time are essential for the support of gain spirals. Two important notes have to be made here. First, statistically speaking, both conditions are independent. As we will see below, most empirical studies on gain spirals that involve work engagement comply with the first but rarely with the second condition. Consequently, this means that, strictly speaking, instead of gain "spirals" mainly "cycles" of positive, mutual reinforcement are demonstrated. Secondly, "real" causation can only be established when experimental designs are used with random assignment of subjects to conditions. Clearly, this is virtually never the case when engagement is studied in the natural work context. Nevertheless, theory-grounded longitudinal field studies that assess variables over time in proper sequence and intervals enhance confidence in (reciprocal) causal relationships (Mathieu & Taylor, 2006).

In this chapter we will discuss three psychological theories that are relevant for understanding potential gain spirals of resources and work engagement. Each approach has its own focus:

1. *Conservation of resources theory* (Hobfoll, 1989) may clarify the dynamic relationship between various types of resources (i.e., physical, social, and personal resources) and engagement.
2. *Social cognitive theory* (Bandura, 1986) may clarify the role of a specific personal resource (i.e., self-efficacy) in the dynamic relationship between engagement and performance.
3. *Broaden-and-build theory* (Fredrickson, 2001) may clarify the role of engagement in relation to the widening of the person's thought/action repertoire and the building of various types of resources.

The reason why we have chosen these specific theories is their motivational nature; all three theories try to understand what moves people by hypothesizing and examining complex reciprocal and upward spiraling relationships. However, these theories are rather general in nature and have only seldom been applied to occupational health psychology, let alone work engagement.

Conservation of resources theory and spirals of job and personal resources

About two decades ago, conservation of resources (COR) theory was offered as an alternative approach to stress and adaptation (Hobfoll, 1989). Meanwhile, COR theory has been adopted and received support in such various contexts as job burnout and encounters with traumatic events such as war and natural disasters. In this section, we will only briefly review COR theory and discuss its relevance for work engagement. For a detailed general discussion of the theory and its empirical support the reader is referred to Hobfoll (1989, 1998, 2001, 2002) and for the application to the workplace to Hobfoll and Shirom (2000) and Westman, Hobfoll, Chen, Davidson, and Laski (2005).

In essence, COR theory proposes a model of human motivation because the acquisition and

accumulation of resources is considered to be a pivotal drive that initiates and maintains people's behavior. The basic tenet of COR theory is that people are seen as motivated to obtain, retain, foster and protect those things that they value. These things are called "resources" and are defined as "those entities that either are centrally valued in their own right, or act as means to obtain centrally valued ends" (Hobfoll, 2002, p. 307). COR theory distinguishes four types of resources that people have to acquire and maintain in order to adapt successfully to their environment:

- *Objects* (e.g., a home, food, tools).
- *Conditions* (e.g., tenure, social support, job control).
- *Personal characteristics* (e.g., professional skills, efficacy beliefs).
- *Energies* (e.g., time, money, knowledge).

Stress occurs when resources are threatened or lost, or when individuals invest resources and do not reap the anticipated level of benefits. Examples from the workplace are job insecurity and role ambiguity (resources are threatened), being fired at work and retirement (resources are lost), and the imbalance of efforts and rewards (the invested resources do not yield the expected benefits).

COR theory has two important assumptions. First, people have to invest their resources in order to deal with stressful conditions and prevent themselves from negative outcomes. For instance, employees may use social support from their colleagues in the form of hands-on assistance in order to deal with temporary work overload. Consequently, COR theory predicts that those with greater resources (e.g., more supportive colleagues) are less vulnerable to stress, whereas those with fewer resources (e.g., less supportive colleagues) are more vulnerable to stress.

Secondly, people must invest resources in order to protect against future resource loss, recover their resources, and gain new resources. For instance, Hobfoll, Johnson, Ennis, and Jackson (2003) showed that resource gain (mastery and social support) over a period of nine months predicted decreased emotional distress among

inner city women. Moreover, individuals strive not only to protect their current resources, but also to accumulate them. For instance, employees learn new skills and competencies in order to increase their employability and reduce the risk of being laid off. COR theory predicts that those who possess more resources are also more capable of resource gain. In other words, initial resource gain begets future gain, thus constituting so-called "gain spirals". For example, increased employability not only reduces the risk of unemployment but also augments the possibility of landing a better job that offers additional opportunities for learning and development, which enhance engagement at work. Hence, gaining resources increases the resource pool, which makes it more likely that additional resources will be subsequently acquired.

According to COR theory, this accumulation and linking of resources creates "resource caravans". That is, resources tend not to exist in isolation, but rather they aggregate such that, for instance, employees working in a resourceful work environment (i.e., have task discretion, or receive high-quality coaching) are likely to reinforce their beliefs in their capabilities and resilience, to feel valued, and be optimistic about meeting their goals. COR theory predicts that in the long run such resource caravans result in positive personal outcomes like better coping, adaptation, and well-being.

In contrast to gain spirals, COR theory also assumes "loss spirals" implying that people who lack resources are susceptible to losing even more resources. A classic case is burnout, whereby the employees' personal and job resources are being progressively eroded leading to increased energy depletion and further diminishment of resources.

Gain spirals and work engagement

Is there empirical evidence that resources positively affect work engagement that, in its turn, positively affects resources? Or, is there evidence for the existence of "resources caravans" or gain processes? To date, six independent longitudinal and diary studies have been carried out that are suggestive of gain spirals.

First, Hakkanen, Perboniemi, and Toppinen-Tanner (2008) conducted a two-wave 3-year panel study among 2555 Finnish dentists to examine the energizing power of job resources and related gain spirals. Drawing on COR theory a reciprocal process was predicted: (1) job resources lead to work engagement and work engagement leads to personal initiative (PI), which, in turn, has a positive impact on work-unit innovativeness, and (2) work-unit innovativeness leads to PI, which has a positive impact on work engagement, which finally predicts future job resources. The results of structural equation modeling (SEM) generally confirmed these hypotheses. Positive and reciprocal cross-lagged associations were found between job resources and work engagement and between work engagement and PI. In addition, PI had a positive impact on work-unit innovativeness over time.

Second, Salanova, Bakker, and Llorens (2006) carried out a two-wave longitudinal study among 258 secondary school teachers to investigate the relationship between personal (i.e., self-efficacy) and job resources (i.e., social support climate and clear goals) on the one hand, and work-related flow – a psychological state akin to work engagement – on the other hand. Using SEM analyses, they found that the teachers' personal and job resources at the beginning of the academic year positively predicted their levels of flow at the end of the academic year, eight months later. Simultaneously, teachers' flow at the start of the academic year predicted both types of resources at the end of the academic year. Thus, a reciprocal relationship was observed between resources and teacher well-being, which is compatible with the notion of gain spirals as proposed by COR theory.

Third, Llorens, Schaufeli, Bakker, and Salanova (2007) conducted a two-wave longitudinal study with university students in a laboratory setting. This study examined the relation between personal (i.e., efficacy beliefs) and task resources (i.e., time control and method control) on the one hand, and task engagement on the other hand. Twenty-two groups of five members each were included, whereby each group performed an innovative task, as well as an intellectual task.

Results showed that neither of the constructs included in the investigation can be considered as a single cause or consequence that perpetuates the spiral of resources, efficacy beliefs, and engagement. Instead, reciprocal causation seems to be the key. That is, task resources had a positive impact on efficacy beliefs, which, in turn, fostered task engagement. In addition, engagement boosted future efficacy beliefs, which, in turn, led to the perception of more task resources. Furthermore, reciprocal relationships existed between personal and task resources, suggesting that they reinforce each other, thus fostering resource accumulation.

Fourth, Xanthopoulou, Bakker, Demerouti, and Schaufeli (2009a) examined the role of personal resources (i.e. self-efficacy, self-esteem, and optimism) and job resources (i.e., job autonomy, supervisory coaching, performance feedback, and opportunities for professional development) in explaining work engagement. They carried out a two-wave longitudinal study among 163 employees with a 2-year time interval. It was hypothesized that job and personal resources, and work engagement are reciprocal over time. Indeed, results showed that not only resources and work engagement but also – as in the previous study – job and personal resources were mutually related. Most importantly, all effects (causal and reversed-causal) were equally strong. These findings support the assumption of COR theory that various types of resources and well-being evolve into a cycle that determines employees' successful adaptation to their work environments. The results also suggested that neither resources nor engagement may be considered as the most important initiator of this cyclical process.

Fifth, Xanthopoulou, Bakker, Demerouti, and Schaufeli (2009c) investigated how daily fluctuations in job resources (i.e., autonomy, coaching, and team climate) were related to employees' personal resources (i.e., self-efficacy, self-esteem, and optimism), work engagement, and the company's financial returns. Forty-two employees working in three branches of a fast food company completed a questionnaire and a diary booklet over five consecutive workdays. One of the most significant findings of this study was that

previous day's coaching had a positive, lagged effect on next day's work engagement (through next day's optimism), and on next day's financial returns. Although the design of this study did not facilitate the examination of reciprocal effects, findings are in line with COR theory, which suggests that resources act in so-called caravans. Namely, existing resources bring more resources resulting in a gain process. For example, when supervisors communicate to their subordinates how well they perform on their assigned tasks, and suggest better ways for doing so, employees' optimism is boosted, and consequently they are likely to feel more engaged and be more productive.

Sixth, Xanthopoulou, Bakker, Heuven, Demerouti, and Schaufeli (2008) examined whether daily fluctuations in colleague support predicted day-levels of job performance through first self-efficacy and then work engagement. Forty-four flight attendants filled in a questionnaire and a diary booklet before and after consecutive flights to three intercontinental destinations. As in the previous study, the dynamic nature of the relationships between the study variables was investigated using a within-subjects design, in which a relatively small sample was followed on multiple occasions over a number of days. Results of multilevel analyses revealed that colleague support had unique positive lagged effects on work engagement and self-efficacy. This means that a supportive work environment not only determines flight attendants' work engagement, but also their personal resources (i.e., self-efficacy beliefs). The latter agrees with the COR notion of resource caravans: job resources breed personal resources.

To conclude, job resources breed personal resources, and vice versa. This underscores the notion of resource caravans as assumed by COR theory. Job and personal resources are reciprocal, because individuals, through learning experiences, may form stronger positive evaluations about themselves and in turn, they comprehend or create more resourceful work environments (Kohn & Schooler, 1982). Moreover, job resources and personal resources have a positive impact on work engagement, which, in its turn, seems to

reinforce both types of resources. This dynamic, reciprocal relationship between resources and engagement as described by COR theory is compatible with and partly supports the notion of gain spirals.

Social cognitive theory and spirals of self-efficacy, engagement, and performance

Social cognitive theory (SCT) assumes that agency, or the capacity to exercise control over our lives, is the essence of humanness. Agency is characterized by a number of core features like intentionality and forethought, self-regulation, and self-reflection about one's capabilities (Bandura, 2001). According to SCT, among the mechanisms governing agency, a strong sense of efficacy to manage one's level of functioning and events that affect one's life plays a pivotal role. Self-efficacy is defined as: "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (Bandura, 1997, p. 3). Whatever other factors serve as motivators, they are rooted in the core belief that one has the power to produce desired effects by one's actions; otherwise, one has little incentive to act or to persevere in the face of difficulties. More recently, SCT has extended the conception of human agency to collective agency, which is defined as the people's shared belief in their collective power to produce desired outcomes (Bandura, 2001). Perceived collective efficacy is not simply the sum of the individual efficacy beliefs but an emergent group-level property that is governed by similar regulating properties as individual self-efficacy (Bandura, 2001).

While most research has focused on the moderating role of efficacy beliefs in the relationship between stressors and strain (Jex & Bliese, 1999; Jimmieson, 2000; Salanova, Peiró, & Schaufeli, 2002; Schaubroeck & Merrit, 1997; Stetz, Stetz, & Bliese, 2006), less attention has been given to its relationship with positive states like work engagement. An exception has to be made for studies on the relation between self-efficacy and job performance, which are more abundant (see the meta-analysis by Stajkovic & Luthans, 1998). Nevertheless, recent studies support the positive

link between efficacy beliefs and work engagement, showing a causal as well as reciprocal relationship between the two constructs over time (Llorens et al., 2007; Xanthopoulou et al., 2008, 2009a). Moreover, Salanova, Llorens, and Schaufeli (2008) performed two-wave and three-wave longitudinal studies among secondary school and university students and found that efficacy beliefs (i.e., self- and collective efficacy) were related to positive emotions (i.e., enthusiasm, satisfaction, and comfort) which in their turn, predicted future work and task engagement. Finally, research has shown that groups with higher levels of collective efficacy show higher engagement and group performance (Salanova, Llorens, Cifre, Martínez, & Schaufeli, 2003). Thus, it is clear that self- and collective efficacy play a crucial role in explaining work engagement.

Spirals of efficacy beliefs, engagement, and performance

Past research has suggested that a positive gain spiral of self-efficacy and performance exists; self-efficacy enhances performance, which – in its turn – increases efficacy beliefs (Lindsay et al., 1995; Shea & Howell, 2000). It is quite plausible to include engagement in this spiraling process, as hypothesized by the so-called spiral model of efficacy beliefs (Salanova, Bresó, & Schaufeli, 2005; Salanova, Cifre, Llorens, & Martínez, 2007; Salanova, Llorens, & Schaufeli, 2008), which draws on the main assumptions of SCT and the job demands-resources model (Bakker & Demerouti, 2007).

The spiral model of efficacy beliefs proposes that efficacy beliefs (i.e., self- and collective efficacy) initiate gain spirals. The suggested psychological process operates as follows: before employees choose a goal and initiate their effort toward that goal, they tend to weigh, evaluate, and integrate information about their capabilities. According to SCT, expectations of personal efficacy will determine whether a behavior will be initiated, how much task-related effort will be spent, and how long that effort will be sustained despite disconfirming evidence. Moreover, levels of efficacy beliefs that employees and groups experience influence their perceptions of job

demands and resources. Namely, when efficacy levels are high and individuals believe that they can control their environment effectively, job demands are more likely to be perceived as challenging and job resources as abundant. Consequently, individuals are more likely to be engaged in their tasks and perform well. This constitutes a process of mutual reinforcement that may result in upward spirals.

There is some evidence for the spiral model of efficacy beliefs. It has been shown that resources (i.e., efficacy beliefs and job resources) predict engagement in a positive way (see above and Chapters 7 and 8). However, the relationship between job demands and engagement is somewhat more complicated. Research has demonstrated that job demands are either very weakly or not at all related to engagement (Schaufeli & Bakker, 2004; Llorens, Bakker, Salanova, & Schaufeli, 2006). Nevertheless, job resources particularly impact engagement when demands are high (see Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007). An explanation could be that there are different types of demands, such as challenge and hindrance demands, with different effects on engagement and motivation. For example, challenge demands may show a positive relationship with engagement while hindrance demands are unrelated to engagement (Cavanaugh, Borwell, Roehling, & Boudreau, 2000; LePine, Podsakoff, & LePine, 2005). Challenge demands (i.e., deadlines and time pressure, quantitative and mental overload) are related to goal attainment and work motivation, whereas hindrance demands (i.e., role conflict, situational obstacles) preclude goal attainment. In a sample of Spanish secondary teachers and users of information and communication technologies (Ventura, Salanova, & Llorens, 2008), multi-group SEM showed that high levels of efficacy beliefs were related with more challenge demands (i.e., mental overload), which in turn positively affected work engagement.

Sources of efficacy beliefs as drivers of spirals

As we have seen, according to SCT, self-efficacy initiates gain spirals. But it is also important to

know the drivers of efficacy beliefs. SCT identifies four sources of efficacy beliefs: mastery experiences, vicarious experiences, verbal persuasion, and emotional states. Research has indicated that succeeding in a challenging task (i.e., *mastery experience*) is most effective in improving efficacy beliefs (Bandura, 2001). This is because enactive mastery is the only antecedent of self-efficacy that provides direct performance information for the formation of more stable and accurate efficacy judgments. However, changes in self-efficacy will not occur as a direct result of performance accomplishment. Rather, changes will depend on how employees process the information that the previous performance generated. This interpretation is supported by research showing that superior past performance of students (i.e., Grade Point Average) was positively related to high levels of self-efficacy and academic engagement, whereas inferior past performance was related to inefficacy and burnout (Salanova et al., 2005).

Given the amount of diagnostic information available in an organizational context, self- and collective efficacy appraisals are also influenced by *vicarious learning*, which occurs by observing efficacious individuals and groups perform a similar task. The greater the perceived similarity between the role model and the target person, the greater the influence of the model on the person's efficacy beliefs. *Verbal persuasion* by someone employees trust and see as expert serves as another means of strengthening self- and collective efficacy.

Finally, the fourth major sources of self-efficacy are *psychological and emotional states*. For example, when people feel content and satisfied, they are more likely to believe that they are competent. This relationship is illustrated by Salanova et al. (2006), who showed that flow at work was reciprocally related with teacher self-efficacy over the time. Also, results of a three-wave study among one hundred participants working in groups (Salanova et al., 2008) supported a positive gain spiral of collective efficacy beliefs, positive collective emotions (i.e., enthusiasm, satisfaction, and comfort), and collective task engagement. In this study, not only

was reciprocity confirmed but also levels of collective efficacy increased significantly over time (from T1 to T2 and from T2 to T3).

To conclude (self and collective) efficacy beliefs predict future engagement which, in turn, predicts performance in a reciprocal way. Research on efficacy beliefs and engagement suggests the existence of a gain spiral, where efficacy beliefs predict engagement and performance through perceptions of challenging job demands and job resources, which, in turn, foster efficacy beliefs over time.

Broaden-and-build theory: Positive emotions and engagement

Fredrickson's (1998, 2001) broaden-and-build (B&B) theory seeks to explain how positive emotions or pleasant affective states promote well-being. This recently formulated theory suggests that distinct positive emotions (e.g., joy, interest, enthusiasm, love, pride, contentment) share the ability to *broaden* people's momentary thought-action repertoires and *build* their enduring personal resources, including physical, intellectual, social, and psychological resources (Fredrickson, 2001). Positive affective states *broaden* by prompting momentary exploratory behaviors (e.g., flexibility, creativity), which in their turn create learning opportunities. Such opportunities *build* more accurate maps of what is good or threatening in the environment, which help individuals to successfully manage future challenges (Fredrickson, 2003). Accordingly, this acquired knowledge has a long-term adaptive value for individuals because it is translated into lasting resources. Consequently, the accumulating effects of the "building through broadening" may improve individuals' momentary and prospective health and well-being.

Empirical research has provided substantial support both for the broaden and the build hypotheses. Regarding the former, studies have shown that positive emotions broaden the scope of attention, cognition, and action (for a review see Fredrickson, 2001, 2003). For example, Fredrickson and Branigan (2005) found that individuals experiencing a higher activation state of amusement and/or a lower activation state of

contentment exhibited broader scopes of attention and had more thought-action urges than those experiencing no particular emotion. In another experimental study, participants, after viewing videos eliciting joy, showed lower levels of own-race bias in face recognition (Johnson & Fredrickson, 2005).

To date, there are few studies supporting the build hypothesis. Results of a diary study revealed that daily job resources generate positive emotional experiences in employees, which in turn have an immediate effect on their personal resources (Xanthopoulos, Bakker, Demerouti, & Schaufeli, 2009b). Two longitudinal studies among insurance sales agents in Taiwan showed that positive moods (e.g., enthusiasm, excitement) predicted task performance through interpersonal (i.e., co-worker helping and support) and personal (i.e., self-efficacy and task persistence) resources (Tsai, Chen, & Liu, 2007). However, the strongest evidence comes from an experimental study by Fredrickson, Cohn, Coffey, Pek, and Finkel (2008), where a manipulation to increase positive emotional experiences was used. Employees of a company either attended a loving-kindness meditation workshop or had no intervention. Results indicated that meditation practices increased daily experiences of positive emotions, which in turn produced gains in personal resources (e.g., mastery, self-acceptance) 8 weeks later. Consequently, these increments in personal resources predicted increased life satisfaction and reduced depressive symptoms. This study is particularly crucial because it provides evidence for causal relationships and for actual increases (i.e., gains) over the course of time.

Upward spirals in the broaden-and-build theory

The research evidence concerning the broaden-and-build theory laid the ground for the hypothesis that positive emotions generate upward spirals. Positive emotions trigger upward spirals because the broadening of individuals' thought-action repertoires and the building of resources may, in their turn, promote well-being and adaptive functioning, as well as future experiences of

positive emotions. Throughout this dynamic broaden-and-build process, individuals become more resilient and self-efficacious, and consequently create less threatening environments that facilitate the elicitation of positive emotions not only for themselves, but also for significant others (e.g., colleagues, partners). In other words, positive emotions not only make people feel good in the present, but by triggering positive gain spirals, increase the likelihood that people will function well and feel good in the future as well (Fredrickson, 2003).

In line with this assumption, Fredrickson and Joiner (2002) showed in a longitudinal study with a 5-week time interval that positive affect and broad-minded coping (i.e., taking a broad perspective on problems and generating multiple possible solutions) were reciprocal. When positive affect is experienced, individuals are more likely to have a broader view on their problems that helps them come up with multiple potential solutions and vice versa. When people can find multiple solutions for their problems, they are more likely to experience positive emotions. Additional analyses showed that positive affect and broad-minded coping serially enhanced one another. Thus, positive emotions initiated upward spirals toward emotional well-being. Recently, Burns et al. (2008) replicated this finding by showing that positive affect and broad-minded coping mutually build on one another over a 2-month period. Additionally, Burns and colleagues extended previous studies by demonstrating that upward spirals involve not only cognitive, but also interpersonal resources and benefits. Namely, they observed comparable upward spiral relations between positive affect and the social resource of interpersonal trust.

Work engagement in the broaden-and-build process

Empirical evidence regarding the B&B theory provides clear support for the existence of upward spirals, since there is evidence for both reciprocity and increase in levels. Having in mind the proposed psychological mechanisms, three possible functions of work engagement may be detected in relation to the upward spiral proposed

by the B&B theory. Specifically, work engagement may serve the following functions:

1. A positive affective-motivational state.
2. The initiator of positive emotions.
3. The outcome of positive emotions.

First, work engagement, although more persistent and pervasive than momentary emotions (Schaufeli & Salanova, 2007; see also Chapter 2), is a *distinct* positive affective-motivational state that may broaden employees' thought-action repertoires and build their enduring personal resources. In line with that, scholars have used the B&B framework to formulate the hypothesis that work engagement leads to cognitive broadening and resources building over time. For instance, Hakonen et al. (2008) in their two-wave study among a large sample of Finnish dentists found that the experience of work engagement may broaden dentists' coping and action repertoires, including their levels of personal initiative (i.e., active and initiative-taking behavior that goes beyond formal work requirements). Results of crossed-lagged panel analyses not only supported the notion that work engagement predicted personal initiative 3 years later, but simultaneously supported the reversed-causal relationship.

Focusing on the build part of the theory, Xanthopoulos et al. (2009a) hypothesized that work engagement, by stimulating self-enhancement through learning and goal achievement (i.e., broadening), builds job resources (e.g., autonomy, and opportunities for professional development) and personal resources (self-efficacy, organizational-based self-esteem, and optimism) over time. The findings of this study among 163 employees of an electrical engineering and electronics company in The Netherlands showed that work engagement was indeed related to both job and personal resources 2 years later. Most importantly, the relationship between work engagement and resources was reciprocal over the course of time.

A second function of work engagement in relation to the B&B process is that of the *initiator* of positive emotions. Engaged employees are vigorous, enthusiastic, and absorbed in their work tasks because they derive fulfillment from

them. According to Fredrickson (2001), positive emotional states are elicited particularly when individuals are in pleasant situations. Engaged employees are considered to be in a pleasant situation, because although they may also have to deal with threats or demands in the work environment, they are more likely to perceive these as challenges. Moreover, the highest levels of work engagement are experienced in conditions combining high job resources and high job demands (Bakker et al., 2007). In this context, studies that examined work engagement as both an enduring quality, as well as an emotional state that may fluctuate from day to day, showed that the more engaged employees generally are, the more likely it is that they experience daily (momentary) states of enthusiasm and engagement (Xanthopoulos et al., 2008, 2009c). Put differently, "trait-like" engagement predicts "emotional-like" state engagement. These studies further supported the link between day-level engagement experiences and performance indicators like financial returns, thus substantiating the proposition of positive spirals.

Finally, work engagement, as an indicator of positive psychological well-being (Schaufeli & Salanova, 2007), may be a direct or indirect *outcome* of positive emotions. The view of work engagement as a *direct* outcome of positive emotions suggests that engagement may explain why positive emotions, by broadening cognitive functions, build resources. Frequent experiences of positive emotions in the workplace may lead to a more persistent, positive affective state, namely work engagement. Indeed, Salanova et al. (2008) showed that work and task engagement was predicted by positive emotions such as (individual and collective) enthusiasm, satisfaction, and comfort. Similarly, Schaufeli and Van Rhenen (2006) showed in their study among 815 Dutch managers that work-related positive affect partially mediated the relationship between job resources on the one hand, and work engagement and positive attitudes towards the organization on the other hand. In this context, employees who often feel enthusiasm, pride or joy while working are more likely to be interested in what they have to do and as a result may end up being in a more

pervasive motivational state of energy, dedication, and total immersion in their work. Engaged employees, who are intrinsically motivated to fulfill their work goals, will look for or create resources in their environment, in order to achieve these goals, as assumed by COR theory (see above). Resourceful environments may improve the beliefs employees have regarding their capabilities to control and achieve their work goals successfully (i.e., personal resources). Consequently, this may lead to enhanced well-being and performance, which in their turn may elicit even more experiences of positive emotions.

The view of work engagement as an *indirect* outcome of positive emotions emphasizes the role of resources in explaining the link between the two. As we have seen, the main assumption of the B&B theory is that positive emotions broaden individuals' thought-action repertoires and build their resources (Fredrickson, 2001). Employees who experience positive emotions end up with more personal, but also more social or situational (i.e., job) resources. Also, this is in line with SCT, which suggest that positive emotional states are one of the main sources of efficacy beliefs (see above). There is convincing empirical evidence that job and personal resources, due to their extrinsic and intrinsic motivational potential, are the most important predictors of work engagement (for a review, see Bakker, 2009). Therefore, high levels of resources (as initiated by positive emotions) lead to engaged workforces. In turn, engaged employees not only report higher levels of well-being and exhibit better performance (for a review, see Bakker, 2009), but they are also likely to have more positive affective experiences and gain more resources over the course of time. This is in line with the study of Fredrickson et al. (2008), who showed that positive emotions lead to gains in personal resources, which in turn predicted gains in various well-being aspects.

To conclude, work engagement may be seen as: (1) the positive affective-motivational state, (2) as the initiator of positive emotions, and (3) as the outcome of positive emotions. It is important to make clear that these different functions (particularly 2 and 3) and the proposed underlying psychological processes are not independent

of each other. Rather, they are complementary and explain all possible relationships between emotions, resources, and engagement in the development of upward spirals. Put differently, every single relationship described above is necessary in order to understand and explain the full spectrum of the B&B spirals.

Conclusion and outlook

In this chapter the notion of spiraling (personal and job) resources and work engagement was discussed. Despite the few studies on gain spirals in occupational health psychology, there is some empirical evidence that positive psychological constructs (like resources, positive emotions, and engagement) are mutually reinforcing each other. We used three theoretical perspectives for understanding the complex spiraling among job resources, personal resources, and engagement: (1) conservation of resources theory; (2) social cognitive theory; and (3) broaden-and-build theory. These three theories explain gain spirals of resources and engagement in a supplementary way, each of them dealing with a different facet. COR theory presents a general framework for different kinds of resources and for ways in which these resources accumulate over time in gain spirals. In the case of SCT, the main resource is a personal one – efficacy beliefs – that relates to engagement and performance in a reciprocal way. Finally, B&B theory focuses on upward spirals, where positive emotions play a central role in explaining resources and work engagement.

Most of the studies presented in this chapter were congruent with the predictions of these theories, suggesting reciprocal and positive relationships between resources and engagement. However, it is important to note that almost all studies that have been reviewed in this chapter meet only the first condition for demonstrating the existence of a gain spiral, namely reciprocal causation. Increases in levels over time – the second condition – were only rarely observed. Nevertheless, the reviewed studies propose a complex interplay of job and personal resources, positive emotions, work engagement, and positive organizational outcomes. It seems that these are all elements of a self-perpetuating, complex and

dynamic motivational process. Self-perpetuating, because the elements are reciprocally related; complex, because all elements are directly, or indirectly related to each other; and dynamic, because the process unfolds across time, whereby feedback and feed-forward loops seem to exist. Therefore, it may be speculated that a positive cycle that includes job resources, personal resources, positive emotions, work engagement, and enhanced performance does exist. As in every cycle, the starting or ending point is not of main importance. Instead, it is crucial to understand how and why the factors shaping the cycle succeed and reinforce one another.

Critical remarks

There are certain methodological and theoretical issues concerning the concept of gain spirals that warrant discussion. As already mentioned, in order to fully support the hypothesized gain spirals, empirical evidence for reciprocal causation of each possible sequence of effects, although necessary, is not a sufficient condition. The idea of gain spirals also presupposes a real positive change (i.e., improvement in levels) over

time (see Lindsley et al., 1995) and our definition of gain spirals at the beginning of the chapter. Longitudinal studies described in this chapter provide convincing evidence for the assumption of reciprocity. However, few studies support actual gains in terms of increases in the levels of the variables of interest (Fredrickson et al., 2008). Finally, only the study by Salanova et al. (2008) provides evidence both for reciprocal and positive relationships between self-efficacy, positive emotions, and engagement, and for a monotonic and significant increase in self-efficacy levels over time. More studies focusing on changes are needed. In other words, it should be demonstrated that the pattern of relationships between resources and engagement over a series of waves or trials is characterized by monotonic increases, whereby changes in resources and engagement build on each other producing an amplifying loop over time.

COR theory and B&B theory explain two possible types of spirals, i.e., gain and loss spirals: the existence of resources or positive emotions may initiate gain spirals, whereas the absence or loss of resources and the existence of

negative emotions may initiate loss spirals. SCT proposes another way of development over time: the self-correcting cycle that may fluctuate upward or downward over relatively short periods of time, "wherein there is no discernible pattern of mutual causation" (Lindsley et al., 1995, p. 650). For example, in the case of resources and engagement, a self-correcting cycle would exist if there was a significant relationship between consecutive measures of resources and engagement, and at least one change in either resources or engagement was in the opposite direction of the usual pattern of changes (i.e., a negative change in either resources or engagement in an otherwise upward spiral, or a positive change in either resources or engagement in an otherwise downward spiral). In the future, not only gain and loss spirals but also self-corrective cycles of resources and engagement should be investigated.

Final remark

So far, although strictly speaking only limited empirical evidence exists for gain spirals as proposed by COR, SCT, and B&B theories, cycles in which resources and work engagement mutually influence each other have been convincingly demonstrated. This is an important finding which indicates that resources and engagement may activate and conserve positive conditions, beliefs, and affective states. This conclusion is significant theoretically because it identifies underlying psychological mechanisms, and practically because it implies that resourceful environments contribute to a flourishing workforce, and vice versa.

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Practical implications

Since work engagement is an essential, positive element of employee health and well-being, with relevant consequences for organizations, a crucial question is how to initiate and maintain gain spirals of engagement over the time. Gain spirals may be sparked by personal and job resources, as well as by positive emotions, and may result in various positive outcomes via work engagement. In turn, these positive outcomes increase resources and foster high levels of engagement, and so on. Following the logic of such gain spirals, work engagement may be increased by stimulating each link of the spiral.

Increasing job resources is likely to result in higher levels of work engagement. Hence, (re)designing jobs in order to promote engagement boils down to increasing job resources. Also, job rotation and changing jobs might result in higher engagement levels because they challenge employees, increase their motivation, and stimulate learning and professional development. Furthermore, since engagement seems to be contagious and may spread across members of work teams (Bakker, van Emmerik, & Euwema, 2006), leaders have a special role in fostering work engagement among their followers. It is to be expected that considerate leadership, and more particularly transformational leadership, is successful in accomplishing this. Indeed, research shows that transformational leaders are key social resources for the development of employee engagement (Tims, Bakker, & Kantopoulos, 2009).

Further, training programs in organizations that aim at increasing work engagement could focus on building personal resources (e.g., efficacy beliefs, optimism, and resiliency). For example, training programs may cultivate the four sources of self-efficacy mentioned in this chapter as drivers of work engagement. Finally, cultivation of positive emotions in the work context may be beneficial for the initiation of gain spirals. Indeed, Fredrickson et al. (2008) showed that loving-kindness meditation techniques are successful in generating positive emotional experiences in the work context.

Several other studies included some of above proposed strategies in order to increase engagement over the time. Cifre, Salanova, and Rodriguez (2008) performed a stress management intervention in a Spanish tile company that focused on the improvement of job resources such as innovation climate and social relationships at work. Results showed that levels of personal resources (i.e., self-efficacy), job resources, and engagement did increase in the intervention group over the course of one year, but not in the control group. In addition, a stress management intervention program among students (Bresó, Schaufeli, & Salanova, 2008) that focused on the enhancement of positive emotional states (as a source of self-efficacy) was also successful in increasing engagement, self-efficacy, and academic performance in the intervention group (as compared to a control group).

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