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Flow at Work: a Self-Determination Perspective

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Abstract Flow at work refers to a short-term peak experience that is characterized by absorption, work enjoyment, and intrinsic work motivation, and is positively related to various indicators of job performance. In an organizational context, research has predominantly focused on situational predictors of flow – including challenge job demands and resources. In this article, we propose that workers may also proactively create their own optimal experiences. We use self-determination theory to argue that all human beings have basic needs for autonomy, competence, and relatedness, as well as an inherent tendency towards proactivity and growth. We propose that workers may use four self-determination strategies to satisfy their basic needs, facilitate flow experiences, and, in turn, increase their job performance: self-leadership, job crafting, designing work to be playful, and strengths use. Furthermore, we argue that factors within the organizational context – such as human resource practices and leadership, as well as personal resources – such as self-efficacy and optimism, moderate the effectiveness of these strategies. Implications for theory, research, and practice are discussed.

Keywords Flow · Job crafting · Playful work design · Self-determination theory · Self-leadership · Strengths use

Flow is a state of consciousness where people become totally immersed in an activity and enjoy it intensely (Csikszentmihalyi 1997). This state can be achieved during a variety of activities. For example, flow may occur when a marathon runner settles into a rhythm and completes her first 10 K, or when an experienced gamer gets to fly a

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supersonic aircraft above unknown territory in his favorite videogame. In a work context, a creative director may experience flow when she manages to develop an exciting marketing campaign for a dull industry. Flow is a peak experience that is enjoyable and intrinsically motivating – an experience that makes time fly (Bakker 2008). The optimal experience is most likely when skills equal challenges, and often coincides with episodic creativity and excellent performance. This is the reason why the flow concept continues to attract attention in the organizational psychology and management literatures (Fullagar and Delle Fave 2017).

Previous studies have found evidence for flow experiences among top-athletes, artists, and exceptionally skilled workers (Csikszentmihalyi 1975; Moneta 2012). In the present article, we focus on the work domain and argue that *all* employees may experience flow through using proactive individual strategies, including self-leadership, job crafting, playful work design, and strengths use. We briefly review research on flow at work, and then use self-determination theory to argue that employees may influence their own flow experience instead of passively responding to their work environment. The proposed model of work-related flow also identifies possible moderators of the relationship between self-determination strategies and flow, namely human resource (HR) practices, leadership, the work context, and personal resources.

This article aims to make the following theoretical contributions. First, we integrate flow and self-determination theories in order to develop a theoretical model predicting job performance. This model will inform both theories, and may set the stage for new research and applications in an organizational context. Second, we propose four specific behavioral strategies through which employees may facilitate their own flow experiences: self-leadership, job crafting, playful work design, and strengths use. A third contribution of this article is the identification of contextual variables that can be expected to moderate the impact of self-determination strategies on performance by facilitating flow.

A Brief Review of Flow Research

Most definitions of flow have three elements in common, namely the total immersion in an activity (absorption), utmost enjoyment of which one is not necessarily aware, and intrinsic motivation (Bakker 2008; Csikszentmihalyi 1997; Larson and Richards 1994). Individuals who experience flow indicate that their sense of time disappears, because they are fully concentrated on what they are doing. The experience is so enjoyable that people are intrinsically motivated to continue with what they do. The activity is rewarding in itself. When in flow, individuals perform the activity with the aim of experiencing the inherent pleasure and satisfaction in the activity (cf. Deci and Ryan 2000). Flow is a peak experience that fluctuates considerably from performance episode to performance episode – that is, within persons and within days.

Applied to work, flow is defined as a short-term peak experience that is characterized by absorption, work enjoyment, and intrinsic work motivation (Bakker 2005). Employees in flow are fascinated by the tasks they perform (Harackiewicz and Elliot 1998); the intrinsic aspects of their work tasks motivate them. Flow is also a state of intense involvement in an activity, which has been associated with high levels of

performance, confidence, focus, ease, and automaticity (Harris et al. 2017). During flow, performance is reported as automatic, and happening without deliberate effort. For example, a professor who delivers a keynote presentation to a large audience may feel in complete control because she discusses the topics in which she has invested 20 years of her life. She goes effortlessly through her presentation, feeling that all those years of studying, analyzing, discussing, writing, and dealing with rejections by journal editors are now finally justified. She has, quite literally, a peak experience.

There are several instruments for the measurement of flow (for an overview, see Schiepe-Tiska and Engeser 2017), including experience-sampling questionnaires that assess proxies of flow (challenge-skill ratios); and survey instruments like the flow state scale (Jackson and Marsh 1996). The latter scale assesses various possible components of flow, including the merging of action and awareness, loss of reflective self-consciousness, high sense of control of one's actions, and clear, unambiguous feedback. In the work domain, scholars have started to use the work-related flow scale (the WOLF; Bakker 2008). This instrument includes three scales for the measurement of absorption, work enjoyment, and intrinsic work motivation. Recent studies have shown that the instrument has good psychometric properties. The WOLF shows satisfactory factorial validity in a range of studies carried out in various cultures and using various languages. More specifically, the three-factor structure of the WOLF was confirmed in The Netherlands (Bakker 2008; Van der Heijden and Bakker 2011; Peters et al. 2014), Norway (Hofslett Kopperud and Vivoll Straume 2009), Spain (Salanova et al. 2006), Italy (Zito et al. 2015), South Africa (Geyser et al. 2015), and Pakistan (Zubair and Kamal 2015). One study carried out in Australia (Happell et al. 2015) found that the items representing the work enjoyment and intrinsic motivation dimensions of the WOLF loaded on one dimension. In all studies, the three dimensions are moderately to strongly related – indicating that flow is one overall concept.

Flow is positively related to various indicators of job performance. For example, Hofslett Kopperud and Vivoll Straume (2009) found that each of the flow dimensions was positively related to self-reports of task performance, whereas Bakker (2008) found that flow was an important predictor of other-reports of performance. More specifically, Bakker found that work enjoyment was the most important predictor of task performance, whereas intrinsic work motivation was the most important predictor of contextual performance. Demerouti (2006) also showed that flow was predictive of other-ratings of job performance (task and contextual performance), but particularly for employees high in conscientiousness. Flow experiences proved to be beneficial only for employees who could direct these experiences toward the right objects and activities – showing the importance of personality for the consequences of flow. Finally, Yan et al. (2013) found that employees who frequently engaged in knowledge sharing (knowledge seeking and contributing) experienced more flow, which, in turn, predicted creativity. Specifically, employees who reported more attention focus and enjoyment as a consequence of knowledge sharing were more likely to produce new ideas, solve problems, and demonstrate originality in their work. Taken together, these studies show that flow in the workplace may have important consequences for job performance and creativity.

Antecedents of Work-Related Flow

Csikszentmihalyi's (1997) experience sampling studies have shown that people more often experience flow during work than during leisure time. This begs the question of which characteristics of the work situation contribute to flow experiences. Since the majority of the classic flow studies have focused on the balance between situational challenges and personal skills as predictor of flow, we start with conceptualizing situational demands. According to the challenge-hindrance stressor framework (Cavanaugh et al. 2000), challenge demands refer to work tasks and conditions that require effort and energy, but may result in growth, learning, and goal attainment when efficiently dealt with. For instance, highly complex work tasks require high levels of energy investment, but may also promote experiences of mastery and competence. In contrast, hindrance demands such as interpersonal conflicts present conditions that require considerable effort and energy, but do not have growth potential (LePine et al. 2005). It can thus be expected that challenge demands foster flow, whereas hindrance demands undermine flow experiences.

Previous research has indeed shown that people need challenges to facilitate flow in a range of activities, including work. More specifically, the occurrence of flow is most likely when people perceive a balance between the challenge of a situation and their own skills to deal with this challenge (e.g., Clarke and Haworth 1994; Csikszentmihalyi 1997). For example, a proficient music teacher may perceive a balance between challenges and skills when he succeeds in teaching improvised jazz music to students who only learned to play classical music from sheets (Bakker 2005). This balance enables the music teacher to perform at a high level and experience flow (intrinsic motivation, enjoyment, and absorption), which, consequently, facilitates the learning process for music students.

Whereas skills refer to personal resources employees have to deal with challenges, job resources refer to environmental resources that may be used to turn challenges into flow experiences. Job resources are those physical, psychological, social, or organizational aspects of the job that are functional in achieving work goals, stimulate personal growth, learning, and development, and reduce the stressful impact of (hindrance) job demands (Demerouti et al. 2001). Examples of job resources are autonomy, social support and performance feedback. Research has indeed shown that such job resources make a positive contribution to the motivation, commitment, work engagement, and performance of individuals (Bakker et al. 2014; Hackman and Oldham 1980), and buffer the undesirable influence of job demands on stress reactions (Bakker et al. 2005). Opportunities for self-growth, for example, enable employees to cope well with the high demands of their work, whereas performance feedback facilitates on-the-job learning and helps to improve performance on complex tasks.

Demerouti (2006) investigated the link between Hackman and Oldham's (1980) five core job characteristics and work-related flow. The combined index of these five job resources (skill variety, task identity, task significance, autonomy, and feedback) was positively related to flow. Using a longitudinal research design, Fullagar and Kelloway (2009) studied the predictive validity of each of the five core job characteristics and found that skill variety and autonomy were both uniquely and positively associated with flow experiences. Furthermore, Mäkikangas et al. (2010) showed that mean levels of job resources and flow as well as changes in both variables were positively related

with each other. Thus, employees with higher levels of social support, autonomy, feedback, opportunities for development and supervisory coaching reported more flow. Moreover, when these job resources increased over time, employees' levels of work-related flow also increased.

Finally, in a recent daily diary study, Tadic et al. (2015) investigated the role of job resources in the context of the challenge-hindrance stressor framework (Cavanaugh et al. 2000), focusing on two well-being indicators that are closely related to work-related flow, namely daily positive affect and daily work engagement. Teachers were asked to fill out a daily diary questionnaire for several days in a row. The findings showed that job resources such as coaching, opportunities for self-growth, and feedback buffered the negative impact of daily hindrance demands on positive affect and work engagement, whereas these resources boosted the positive impact of challenge job demands on both outcomes. Taken together, these findings suggest that flow is most likely when employees are challenged in their work, and have the resources (i.e., skills and job resources) to deal adequately with these challenges.

Proposition 1 Challenging job demands and job resources are positively related to job performance, through work-related flow.

Towards a Self-Determination Model of Flow

The above review shows that the literature on flow has made considerable progress by conceptualizing flow, validating measures of work-related flow, and by revealing possible organizational antecedents and consequences of flow. However, most of this research has treated employees as relatively passive individuals who react to their working environment, and who experience flow when this environment is challenging and resourceful. Flow research has largely ignored the possibility that people may also proactively *create* their own optimal experiences. Recent theoretical and empirical work has illustrated that employees do take personal initiative, and that proactive work behaviors can be very important for employee well-being and organizational performance (Parker et al. 2010).

In the present article, we argue that proactive work behavior is an important predictor of work-related flow and performance. More specifically, we propose that employees may use four self-determination strategies to facilitate peak experiences: self-leadership, job crafting, playful work design, and strengths use (see Fig. 1). These strategies satisfy basic psychological needs, foster flow, and indirectly facilitate performance. Our model further proposes that factors within the organizational context such as HR practices and leadership, as well as personal resources such as self-efficacy and optimism will directly affect the employment of self-determination strategies and the occurrence of flow and basic needs satisfaction, but will also moderate the effectiveness of these strategies. Below, we briefly outline the self-determination strategies, and then discuss organizational and personal factors that may moderate the effects of these strategies. We start with a brief discussion of self-determination theory – a theory that offers an excellent basis for the idea that individuals may create their own flow experiences.

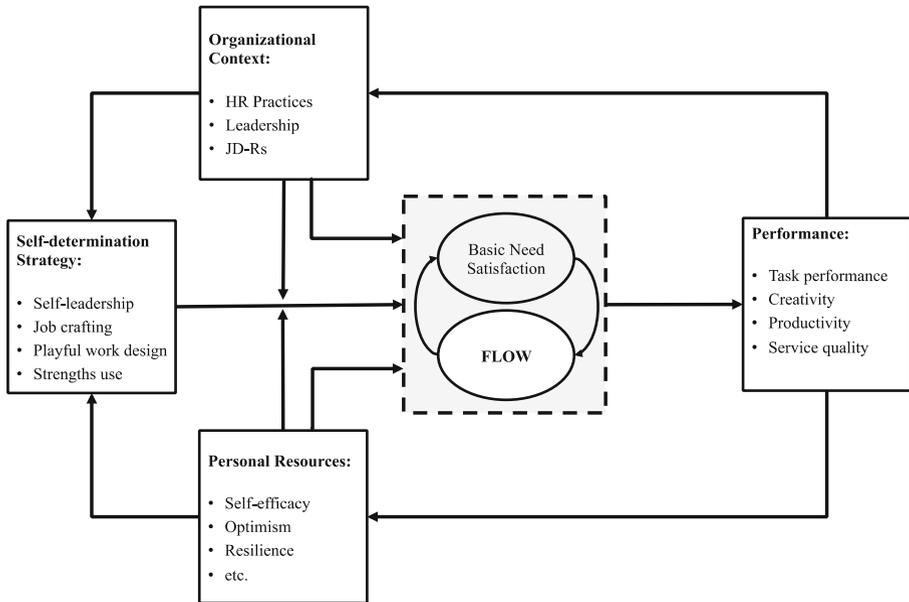


Fig. 1 Self-determination model of flow. *Note.* JD-Rs = job demands and job resource

Self-Determination Theory

Self-determination theory provides an overall framework for human flourishing, using three important building blocks (Deci and Vansteenkiste 2004). The first is that human beings are inherently proactive and have the tendency to act on and master internal and external forces, rather than being passively controlled by those forces. Thus, employees may act on or actively regulate their enthusiasm when working on a project, and proactively influence their working environment in order to perform well. The second building block of self-determination theory is that people have an inherent tendency toward growth, development, and integrated functioning. Deci and Vansteenkiste argue that individuals "...are not mere products of social learning or programming but instead are oriented toward development and health and toward engaging their inner and outer environments in ways that promote these positive processes and outcomes." (p. 24). The third building block is that people may actualize their potential in a proactive way, but need a supporting environment (Deci and Ryan 2000). The environment may provide the necessary resources (these are called 'nutriments' in self-determination theory), and in this way support activity, growth, and psychological well-being. Thus, the theory proposes that there is an interaction between the proactive and growth-oriented individual and the social world that can either thwart or support human development and well-being.

According to self-determination theory, people have three innate psychological needs, namely the needs for autonomy, competence, and relatedness (Deci and Ryan 2000). The need for autonomy implies that people have a universal urge to be causal agents and to experience volition (deCharms 1968). The need for competence concerns people's inherent desire to be effective in dealing with the environment (White 1959),

and the need for relatedness or belongingness implies the universal propensity to interact with, be connected to, and experience caring for other people (Baumeister and Leary 1995). Research of the past decades has indeed shown that satisfaction of these three needs fosters well-being and performance, whereas frustration of the needs fosters job strain and impaired performance (Gagné and Vansteenkiste 2013).

Although the name of the theory suggests that individuals determine their own well-being and performance, the vast majority of previous studies using self-determination theory have hypothesized and shown that the *provision* of environmental or job resources satisfies employees' basic needs (Gagné and Vansteenkiste 2013). Thus, when employees have access to social support, experience volition, and have opportunities to use a variety of skills, they report higher levels of well-being, because these resources satisfy basic needs for relatedness, autonomy, and competence. In this article, we use the building blocks of self-determination theory to argue that employees are crucial actors in the self-determination process and use proactive strategies to satisfy their basic needs and experience flow at work. We discuss four of these strategies, namely self-leadership, job crafting, playful work design, and strengths use.

Self-Leadership

Self-leadership refers to the process by which people influence themselves to achieve the self-direction and self-motivation that is needed to behave and perform in desirable ways. Self-leadership comprises behavior-focused strategies, natural reward strategies and constructive thought pattern strategies (Houghton and Neck 2002). Behavior-focused strategies such as self-observation, self-goal setting, self-reward, and self-correcting feedback and practice can facilitate the management of behaviors that are necessary but may be unpleasant. Natural reward strategies include efforts to incorporate more pleasant features into a task or to change the perception of a task by focusing on its inherently rewarding aspects (for instance, by shifting attention to features of the task that are enjoyable). Constructive thought pattern strategies include the creation of functional thinking patterns by challenging irrational beliefs, mental imagery of successful future performance and positive self-talk.

We expect that self-leadership may foster the satisfaction of basic needs. By using strategies to enhance self-direction and performance, self-leadership plays to the needs for autonomy and competence. The need for relatedness might be influenced in a more indirect way. For example, natural reward strategies and constructive thought patterns might lead to higher levels of positive affect, which according to broaden-and-build theory (Fredrickson 1998, 2001) go along with a tendency to display approach behavior toward other persons and a greater perceived similarity with other persons (Waugh and Fredrickson 2006).

We also propose that self-leadership may directly enhance work-related flow. By applying behavior-focused strategies and eliminating unproductive work behaviors, people are more likely to perceive a balance between the challenge of a situation and their own skills to deal with this challenge. Constructive thought pattern strategies help people to be less disturbed by dysfunctional, irrational beliefs that may prevent them from getting in a state of flow. By using natural reward strategies, people are more likely to be motivated by

inherently enjoyable aspects of the task, leading to higher levels of absorption, enjoyment and intrinsic motivation.

Proposition 2 Self-leadership has a positive impact on basic need satisfaction and flow.

Job Crafting

Employees may actively change the design of their jobs by choosing tasks or negotiating different job content (Parker and Ohly 2008). This process has been referred to as job crafting (Wrzesniewski and Dutton 2001). Job crafting is defined as the physical and cognitive changes individuals make in their task or the relational boundaries of their task. Physical changes refer to changes in the form, scope or number of job tasks, whereas cognitive changes refer to changing how one sees the job. Changing relational boundaries means that individuals have discretion over whom they interact with while doing their job.

Job crafting is about changing the job in order to experience enhanced meaning of it. As a consequence, employees may be able to increase their person–job fit (Tims and Bakker 2010), and thereby increase the opportunity to experience flow and optimal performance. Berg et al. (2013) have also argued that job crafting in ways that create opportunities to pursue passions, or the activities and topics that spark deep interest (e.g., learning, using technology), can be a rich source of enjoyment, engagement, and meaningfulness. Tims et al. (2012) indeed showed that job crafting was positively related to colleague-ratings of absorption, vigor, and dedication, as well as in-role performance. Thus, employees who increased their job resources, for example, by asking for feedback from their supervisor and mobilizing their social network, were most likely to become immersed in their work and show peak performance.

Recent daily diary studies have shown that employees are more immersed in their work activities and enjoy their work more on the days they craft their jobs by seeking challenges and seeking resources (e.g., skill variety, opportunities for development; Petrou et al. 2012; Tims et al. 2014). Furthermore, Harju et al. (2016) found that seeking challenges at work prevents boredom, an unpleasant state of passiveness that is characterized by attention difficulties and a distorted sense of time. Other studies have confirmed that job crafting in the form of increasing challenges and resources is positively related to other-ratings of task performance (Bakker et al. 2012), and objective indicators of performance (Gordon et al. 2017). In addition, Ko (2011) found that engineers who engaged in job crafting experienced flow while doing so. Taken together, job crafting seems an effective bottom-up strategy to satisfy basic needs. By actively changing their job in line with passions or values, employees will feel more effective in dealing with their environment (Tims et al. 2014), thereby playing to their need for competence, and they will experience a higher level of volition (Tims et al. 2013), thereby playing to their need for autonomy. By influencing with whom they interact while doing their job they will also satisfy their need for relatedness (Tims et al. 2013). Moreover, job crafting also seems to have the potential to enhance work–related flow, because it increases the fit

between challenges and skills (Lu et al. 2014), and mobilizes the job resources needed to deal with the challenges.

Proposition 3 Job crafting has a positive impact on basic need satisfaction and flow.

Playful Work Design

Scholars from various backgrounds have claimed that people have a natural tendency to play, because play is intrinsically rewarding. The Dutch historian Huizinga (1949) referred to *Homo Ludens* –Man the Player– and argued that play is a free and meaningful activity, carried out for its own sake. Consistent with this view, Csikszentmihalyi (1975) argued that people are most human, free, and creative when they play. His research suggested that a wide range of activities, such as playing chess, climbing rocks, and playing basketball, are, for many people, enjoyable because of the inherent pleasure of the activity. Csikszentmihalyi refers to “autotelic experiences” to indicate that the activity has become a goal in itself, and fosters flow experiences (enjoyment, absorption, motivation). Can play also be used at work as a strategy to foster flow?

Barnett (2007) defined playfulness as “the predisposition to frame (or reframe) a situation in such a way as to provide oneself (and possibly others) with amusement, humor, and/or entertainment” (p. 955). Playfulness or fun may take the form of social, interpersonal, or task activities at work of a playful or humorous nature that provide employees with amusement, enjoyment, or pleasure (Fluegge-Woolf 2014). It has been argued that fun leads to higher job satisfaction, morale, pride in work, creativity, service quality, as well as lower burnout and absenteeism (Yerkes 2007). Research has indeed shown that playfulness has robust positive relations with intrinsic motivation (e.g., Amabile et al. 1994), creativity and spontaneity (e.g., Barnett 2007), and job satisfaction (Yu et al. 2007). Proactively creating conditions at work that foster play – to which we will refer to as “playful work design” could therefore be an effective strategy to increase flow at work.

In our own qualitative research, we asked people what they do in order to “gamify” their work. The responses varied widely, and indicated that employees use playful work design in various ways. Two main categories of play activities were revealed, namely fun and competition. One HR manager indicated: “When I need to work on a boring, bureaucratic task, I gamify it by building additional tasks into the boring task. One option is to fill out the form using the fewest words possible yet covering all the content that must be addressed. This makes it a writing challenge and so, more interesting.” A researcher said, “I often make a list of very specific things I need to do, for example, answering emails, reading an article, designing a survey. I then estimate how much time each task should take, and set an alarm clock for the time allotted for a task and try to beat the clock. This is fun and efficient because I do not randomly stray to do something else because I know I must beat the clock.”

Although more research is needed to investigate the impact of playful work design on employee well-being and performance, playful work design seems to be a promising strategy to experience flow. By integrating amusement, humor and entertainment in their tasks, workers become more immersed in their activities and more likely to enjoy

it intensely (Robert 2017). By approaching work as a game in which they try to reach self-set targets, workers may experience more volition and autonomy, whereas meeting those targets may satisfy their need for competence (Deci and Ryan 2000). Moreover, by engaging in playful and fun interactions with colleagues, playful work design may also fulfill the need for relatedness (Robert and Wilbanks 2012; Sailer et al. 2017).

Proposition 4 Playful work design has a positive impact on basic need satisfaction and flow.

Strengths Use

Individual strengths refer to specific individual characteristics, traits, and abilities that, when employed, are energizing and allow a person to perform at his or her personal best (Linley and Harrington 2006; Wood et al. 2011). Examples of strengths are creativity, bravery, empathy and gratitude – all positive individual characteristics, traits, and abilities. When used, individual strengths facilitate social functioning and performance, because they enable individuals to better deal with environmental challenges. Berg et al. (2013) have argued that job crafting in ways that enable employees to leverage their strengths may cultivate meaningfulness by helping employees leverage what they are naturally capable of doing well (Clifton and Harter 2003). When employees utilize their strengths during work-related activities, they can be authentic and are more likely to experience flow.

A recent study among a representative sample of more than 5000 respondents from New Zealand (Hone et al. 2015) showed that workers who reported high strengths use were no less than 18 times more likely to flourish at work than those who reported low strengths use. Using a weekly diary study in a heterogeneous sample of employees, Bakker et al. (2017) found that weekly strengths use led to weekly work engagement (energy, dedication, and absorption), because strengths use fostered organismic valuing and authentic pride (i.e., being proud on an achievement that costs considerable effort). In a weekly follow-up study among engineers, Van Woerkom et al. (2016b) found that weekly strengths use facilitated self-efficacy, work engagement, and proactive work behaviors.

Moreover, several studies have shown that strengths use is positively related to self- and other-ratings of job performance (Dubreuil et al. 2014; Harzer and Ruch 2014; Van Woerkom et al. 2016a). Using a sample of German employees in various organizations and jobs, Harzer and Ruch (2016) showed that a strengths use intervention led to an increase in the perception of one's job as a calling as well as an increase in life satisfaction. Forest et al. (2012) showed that a comparable strengths intervention increased participants' use of their signature strengths and sense of harmonious passion for work, which, in turn, led to higher levels of well-being. Taken together, strengths use may foster the need for autonomy, competence, and relatedness, and indirectly foster well-being and performance by allowing individuals to be their authentic self, use their abilities, and thereby increase the chance that others will see them as they see themselves, leading to positive relationships (Cable et al. 2013). Also, strengths use may contribute to work-related flow because when people are

doing what they do naturally best, they tend to be intrinsically motivated, excited and invigorated (Peterson and Seligman 2004).

Proposition 5 Strengths use has a positive impact on basic need satisfaction and flow.

Organizational Context

On the basis of previous research within the Job Demands – Resources (JD-R) framework, we can conclude that the organizational context in the form of challenging job demands and resources, as well as absence of hindrance job demands plays an important role in facilitating flow (see Bakker 2005, 2008; Demerouti 2006; Peters et al. 2014; Van der Heijden and Bakker 2011). Structural job demands and resources as perceived by individual employees are under the influence of top-down processes that originate in human resource practices and leadership. Albrecht et al. (2015) have argued that key HR practices (i.e., employee selection, socialization, performance management, and learning and development) influence the organizational climate and the job demands and resources experienced by employees in their work roles. Thus, HR practices may indirectly influence need satisfaction and work-related flow, as well as behavioral and performance outcomes. Offering some evidence for this idea, Alfes et al. (2013) found that HR practices such as employment security, extensive training, decentralization of decision-making, and sharing of financial and performance information were positively related to individual organizational citizenship behaviors through (cognitive) engagement (i.e., being absorbed, concentrated, and focused).

As can be seen in Fig. 1, we propose that HR practices are not only directly related to self-determination strategies on the one hand, and to basic need satisfaction and flow on the other hand, but also moderate the impact of self-determination strategies on basic need satisfaction and flow. HR practices create the optimal context in which employees may use self-leadership, proactively craft their jobs, design their work playfully, and use their strengths. HR practices provide the autonomy that is needed for successful job crafting and self-leadership (Wrzesniewski and Dutton 2001), and may offer support and a learning climate that facilitate playful work design and strengths use (Van Woerkom et al. 2016b).

Proposition 6 HR practices strengthen the positive impact of self-determination strategies on basic need satisfaction and flow.

Transformational leadership theory (Bass 1985) proposes that effective leaders are able to inspire their followers to invest effort in common goals. Transformational leadership has been linked to many motivational outcomes in employees, including empowerment, autonomous motivation, self-efficacy, and self-concordance. Recent studies have suggested that transformational leaders provide job resources to their employees, such as support, feedback and opportunities for growth (Breevaart et al. 2014a, b). These resources, in turn, influence work engagement – a construct highly related to flow. Hence, transformational leaders can be expected to facilitate the work-related flow of their followers by sparking their intrinsic motivation and by providing job resources. Consistent with this position, Van der Heijden and Bakker (2011) found

that transformational leadership had a positive impact on work-related flow. Transformational leaders also facilitate the basic needs satisfaction of their followers by providing them with feedback, tasks that match their abilities, and job control, thereby playing to their needs for competence and autonomy (Hetland et al. 2015; Kovjanic et al. 2012). The need for relatedness is satisfied by giving personal attention and social support (Breevaart et al. 2014a; Deci and Vansteenkiste 2004; Kovjanic et al. 2012).

As can be seen in Figure 1, we propose that in addition to having main effects on need satisfaction and flow, transformational leadership may strengthen the impact of self-determination strategies on need satisfaction and flow. The reason for this is twofold. First, transformational leaders facilitate trust among their followers by giving them individual attention, and encourage them to come up with creative solutions for problems and do more than their formal duties (Burns 1978). This creates a safe climate, which is a precondition for effective self-leadership, job crafting, playful work design, and strengths use at work. Second, transformational leaders may create an optimal work environment with sufficient job autonomy and other resources that enable effective use of self-determination strategies.

Proposition 7 Transformational leadership behavior strengthens the positive impact of self-determination strategies on basic need satisfaction and flow.

Personal Resources

Personal resources are positive self-evaluations that are linked to resiliency and refer to individuals' sense of their ability to control and impact their environments successfully (Hobfoll et al. 2003). Positive self-evaluations predict goal setting, motivation, performance, and other desirable outcomes (Judge et al. 2004). The reason for this is that the higher an individual's personal resources, the more positive the person's self-respect, and the higher the likelihood that the person's goals are consistent with developing interests and values (Judge et al. 2005). Individuals with such goal self-concordance are intrinsically motivated to pursue their goals, and as a result, perform better and are more satisfied (see also, Luthans and Youssef 2007).

Self-efficacy is arguably the most studied personal resource that has shown its impact in various different life domains. General self-efficacy can be defined as "people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives" (Bandura 1994, v.4, p. 71). Salanova et al. (2006) investigated the link between self-efficacy and work-related flow over a time-period of eight months. They found that perceptions of self-efficacy were both predictors and outcomes of flow, suggesting that this personal resource has a reciprocal relationship with flow. According to Bandura (2001), efficacy beliefs contribute to flow by influencing (a) the challenges people pursue, (b) the effort they expend, and (c) their perseverance in the face of obstacles.

Optimism is another important personal resource referring to the belief that one will generally experience good outcomes in life (Scheier et al. 2001). Optimists are better able to confront with threatening situations because they adopt active coping strategies, resulting in a better adaptation at work (Luthans and Youssef 2007). In their study among teachers, Beard et al. (2010) investigated the link between teachers' optimism

(regarding their ability to influence students) and work-related flow. The results showed that optimism was positively related to multi-faceted indicators of flow, including loss of self-consciousness, concentration, transformation of time, sense of control, and merging of awareness and behavior. Since personal resources foster the tendency to create challenges, pursue goals, and invest considerable effort in work tasks, personal resources can be expected to satisfy basic needs and have a positive impact on flow.

Proposition 8 Personal resources have a positive impact on basic need satisfaction and flow.

In the self-determination model of flow, we also position personal resources as moderators of the self-determination strategies – flow relationship. Self-efficacy may moderate the link between self-determination strategies and flow because workers with high levels of self-efficacy are more ambitious in the goals they set for their self-determination strategies, will invest more effort in these strategies, and will persist when being confronted with setbacks (Bandura 2001). In addition, personal resources such as self-efficacy and optimism offer employees the psychological capital that is needed to make self-determination strategies effective. We propose that employees need personal resources such as self-efficacy and optimism to make self-leadership, job crafting, playful work design and strengths use effective, because personal resources determine the effort employees expend, and their perseverance in the face of obstacles (e.g., Bakker and Sanz-Vergel 2013).

Proposition 9 Personal resources strengthen the positive impact of self-determination strategies on basic need satisfaction and flow.

Discussion

Until now, the academic literature on work-related flow has largely treated employees as passive individuals who are dependent on a challenging and resourceful environment for their flow experiences. This is remarkable, especially given the fact that today's work organizations require workers at all levels to take more responsibility for their own jobs and work behaviors (Neck et al. 2006). Moreover, many individuals work without a direct supervisor or are self-employed. In this paper, we aimed to contribute to flow theory by arguing that people may use self-determination strategies to create their own flow experiences. Although we outlined four specific self-determination strategies in our paper, future research needs to establish the relative importance of each of these strategies, and needs to identify other proactive work behaviors that potentially qualify as self-determination strategies. For instance, proactive behaviors regarding maintaining physical fitness might also affect the level of energy that is required to get into a state of flow. Further research is also needed to establish to what extent the four self-determination strategies we propose are distinct from each other. For instance, job crafting may partly overlap with strengths use when workers craft their job towards their strengths (Kooij et al. 2017). Also, job crafting in the form of increasing job resources may overlap with self-leadership in the form of natural reward strategies.

Our model includes a feedback loop in which flow experiences lead to better performance, which in turn may feed back into personal resources and the organizational context. For instance, after an episode that was characterized by a state of flow and excellent performance, workers may have developed higher levels of self-efficacy and optimism (personal resources), and may be trusted with autonomy and opportunities for participation in decision-making (job resources). Also, based on broad-and-build theory (Fredrickson 2001), the positive emotions that go along with a state of flow make it more likely that people build social resources such as colleague support and supervisory coaching. In such a way, increased performance may eventually also lead to more flow experiences. Future studies with longitudinal designs need to verify this presumed upward spiral, and, importantly, need to establish which specific aspects of performance lead to increases in which specific job and personal resources.

Our article contributes to self-determination theory that in spite of its name seems to largely ignore self-regulatory behavior. Surprisingly, most studies in the field seem to focus on (external) environments conducive to basic needs satisfaction – for instance, environments that provide autonomy support. Although this approach is certainly valuable, as it points out how we may design jobs that fulfill people’s basic needs, it also makes individuals rather dependent on their work environment. Focusing on how workers may use self-determination strategies to satisfy their basic needs and create flow experiences is more in line with the proposition that employees play an active role in the design of their job (Berg et al. 2010), and in the negotiation of their idiosyncratic employment arrangement (Rousseau et al. 2006). However, the viewpoint that workers may employ self-determination strategies to satisfy their basic needs and create flow experiences cannot replace the viewpoint that organizations need to offer meaningful and resourceful jobs to their employees.

Our model proposes that contextual variables, such as the type of leadership and HR practices in the organization moderate the effectiveness of self-determination strategies in achieving basic needs satisfaction and flow. This means that although our model proposes that workers are able to take their flow experiences in their own hands, they are still to some extent dependent upon the challenges and resources available in the work environment. This may apply more to some behavioral strategies than to other. For example, in order to change the design of their jobs by negotiating different job content, workers will be more dependent upon their supervisor and the existing work environment than in order to apply self-leadership behaviors such as using constructive thought patterns. Future studies should examine the organizational contexts that are needed for specific self-determination strategies.

Although all the strategies that we propose refer to learned behavior, personality traits may influence the likelihood that a person uses these strategies. For instance, previous research has indicated that self-leadership is associated with traits like extraversion, conscientiousness, and emotional stability (Houghton et al. 2004; Williams 1997). In addition, job crafting is positively related to proactive personality. Future research needs to investigate the relationship between personality and the different self-determination strategies that we propose. Furthermore, it would be important to investigate how the use of self-determination strategies can be stimulated with training interventions. Several field experiments have shown that relative short workshops

or trainings may be effective in stimulating employee strengths use (e.g., Forest et al. 2012), job crafting (Van Wingerden et al. 2017; Kooij et al. 2017), and self-leadership (Neck and Manz 1996). Therefore, HR professionals may support workers in developing self-determination strategies by investing in training, coaching, or online tools.

Conclusion

Workers who are in flow are intensely involved in their activities and experience great pleasure. Working environments offering sufficient job challenges and resources may facilitate such experiences, and indirectly promote job performance. In this article, we argued that workers may proactively optimize their experiences at work through self-leadership, job crafting, playful work design, and strengths use. These self-determination strategies satisfy basic psychological needs, contribute to flow, and indirectly facilitate job performance. We have argued that these strategies will work particularly well for workers with sufficient personal resources. Further, organizations may facilitate the impact of employee proactive behavior by implementing HR practices and by facilitating transformational leadership behaviors. We hope that the self-determination model of flow will inspire and help researchers and practitioners who want to facilitate optimal experiences at work.

Compliance with Ethical Standards

Conflict of Interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

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