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Experience of work-related flow: does high decision latitude enhance benefits gained from job resources?

Abstract

Flow is an experience of enjoyment, intrinsic motivation and absorption, which may occur in situations involving high challenges and high skill utilization. This study investigated the likelihood of experiencing work-related flow in relation to the job strain categories of the demand-control model, and to job resources such as social capital and an innovative learning climate. A questionnaire was sent out to employees in nine Swedish organizations ($n = 3667$, 57% response rate). Binary logistic regressions analysis was performed. The results show that active jobs, low-strain jobs, a high degree of social capital and innovative learning climate increased the likelihood of experiencing work-related flow. In jobs with high decision latitude, regardless of demands, there was an increased likelihood to benefit from social capital and an innovative learning climate. The results emphasize the importance of autonomy and skill utilization, to enable the use of additional job resources in order to promote work-related flow and well-being at work.

Keywords: Work-related flow, Job resources, Demand-control model, Employee health, Health promoting organizations, Innovative learning climate

1. Introduction

Flow is a peak experience of well-being, which encompasses feelings of enjoyment, of intrinsic motivation, or wanting to perform the activity without any other incentive than the activity per se, and of absorption, being totally immersed in the activity (Csikszentmihalyi,

1990; Bakker, 2008). During this experience, individuals feel cognitively efficient, motivated, and happy (Moneta & Csikszentmihalyi, 1996; Fullagar & Kelloway, 2009). The experience of flow tends to occur in situations where challenges are perceived to be high but balanced by the individual's skills and abilities to meet these challenges, and the individual can function at fullest capacity (Csikszentmihalyi & LeFevre 1989; Moneta & Csikszentmihalyi, 1996; Bakker 2005). The construct of flow has received increasing research attention (Seligman & Csikszentmihalyi, 2000) and provides a positive supplement to the traditional approach of organizational health psychology, focusing on adverse health outcomes (Schaufeli, 2004). The experience of work-related flow can increase vigor and decrease exhaustion both at work and during off-job time (Demerouti, Bakker, Sonnentag, & Fullagar, 2012), is positively associated to performance (Bakker 2008; Demerouti 2006; Engeser & Rheinberg, 2008), and can be considered to have significant consequences for organizations (Demerouti, 2006).

The present study aims to investigate how work-related flow is related to the four categories of job strain as defined by the demand-control model, and to an innovative learning climate and social capital at work.

1.1. The demand-control model and active jobs

The demand-control model is frequently used when investigating work conditions and adverse health outcomes (Van Der Doef & Maes, 1999; de Lange, Taris, Kompier, Houtman, & Bongers, 2003). It distinguishes two dimensions of the work environment: psychological demands and decision latitude (Karasek, 1979; Karasek and Theorell, 1990). Psychological demands concerns the intensity of work, i.e. the extent to which work is hard and needs to be done under time constraints and conflicting demands. Decision latitude concerns skill discretion, the breadth of skill usable on the job and opportunities to develop skills, and decision authority or autonomy, the social authority of making decisions, for instance over how to perform one's work. The combinations of the two dimensions, demands and decision

latitude, define four different categories of job strain: passive (low control, low demands), active (high demands, high control), high-strain (high demands, low control) and low-strain (low demands, high control). According to Karasek & Theorell (1990), active jobs call for the highest level of performance without negative psychological strain. While active jobs are demanding, these situations “*involve workers in activities over which they feel a large measure of control, the freedom to use all available skills. Csikszentmihalyi describes this kind of activity as flow (...). We call this kind of job, in which control is high and psychological demand is also high, the ‘active job’*” (Karasek & Theorell, 1990, p. 35). The demand-control model hypothesizes learning and mastery as an outcome of the practised ability to deal with high demands. The learning that occurs in active jobs is further hypothesized to increase the ability to act and make it possible to maintain a state of equilibrium between challenges and skills while confronting an expanding range of challenges, causing increased confidence and feelings of mastery (p. 99) (Karasek & Theorell, 1990). Few investigations have been carried out regarding outcomes of active jobs, and findings are somewhat inconsistent (Taris, Kompier, De Lange, Schaufeli & Schreurs, 2003). It has been found that active jobs are cross-sectionally related to self-efficacy (Parker & Sprigg, 1999), and longitudinally related to self-efficacy and increased skill utilization, which reduces strain (Holman & Wall, 2002). Other studies have found only cross-sectional associations between active jobs and higher levels of learning, while low-strain jobs better predicted learning longitudinally (Taris & Feij, 2004).

Whether active jobs are associated with work-related flow has, to the best of our knowledge, not been investigated. Work-related flow is enabled by decision latitude in terms of autonomy and opportunities for learning (Bakker, 2005; Bakker, 2008); and a balance between high challenges and high use of skills predicts flow (Csikszentmihalyi, 1990; Bakker 2005). We

therefore hypothesize that decision latitude and demands, as defined by the job strain categories, are associated with work-related flow as follows:

Hypothesis1a) Active jobs increase the likelihood of experiencing work-related flow.

Hypothesis1b) High-strain jobs do not increase the likelihood of experiencing work-related flow.

Hypothesis1c) Low-strain jobs do not increase the likelihood of experiencing work-related flow.

1.2 Job resources

The job demand-resources model expands the demand-control model by considering job resources to be those aspects of the job that are functional for achieving work goals, reducing demands, and stimulating growth, learning and development (Bakker & Demerouti, 2007).

Job resources previously found to be associated with work-related flow are mainly investigated at the individual level, such as autonomy, feedback, opportunities for professional development and social support (Bakker, 2005; 2008; Demerouti, 2006); but job resources predicting work-related flow may also be found at a collective or organizational level, such as the degree of innovation orientation and rules orientation (Salanova, Bakker & Llorens, 2006). Social capital could be considered as a collective job resource, as it refers to features of the group, and social relationships, interactions and information-sharing between colleagues and supervisors in informal networks (Kouvonen, Kivimäki, Vahtera, Oksanen, Elovaino, Cox et al. 2006). The shared experience of high social capital at work fosters perceptions of support, trust and consideration, and facilitates cooperative action for mutual benefit. This enables goal achievement and provides access to further resources (Kouvonen, et al. 2006). Based on this reasoning we formulate our second hypothesis:

Hypothesis 2: Social capital at work is a job resource which increases the likelihood of experiencing work-related flow.

Decision latitude – the opportunity to influence work activities, use creativity and skills, and learn new skills – reduces or balances the negative effects of demands on employee health (Karasek, 1979; Karasek and Theorell, 1990; De Lange et al., 2003). Learning opportunities reduce the negative effects of demands on emotional exhaustion (Van Ruysseveldt, Verboon & Smulders, 2011), and enable work-related flow (Bakker, 2008), work engagement (Hu, Schaufeli & Taris, 2011) and task enjoyment (Bakker, Van Veldhoven, & Xanthopoulou, 2010). These learning opportunities concern individual learning (e.g. whether there are opportunities to learn new things at work). As a job resource, learning opportunities may be used as collective resources. The individual can be seen as part of a system where knowledge and skills are not only owned by the individuals but also by the collective (Engeström 2001). When individuals question the existing conditions and try out new ideas, a developmental or innovative learning process can occur, changing structures and activities qualitatively (Engeström 2001; Ellström, 2010). Different learning climates or environments may either facilitate or constrain various learning opportunities (Fuller & Unwin, 2004; Gustavsson, 2009). An innovative learning climate at work encourages new thinking, openness to new ideas, collective exploration, questioning and expression of opinions (Ellström 2010; Engeström 2001). This may provide opportunities to learn and develop new competencies and skills at both individual and collective level, and leads us to our third hypothesis:

Hypothesis 3: An innovative learning climate at work is a job resource which increases the likelihood of experiencing work-related flow.

Individuals who possess more job resources may also be more capable of job resource gain (Bakker & Demerouti, 2007). A high degree of autonomy may in itself be a job resource, but it may also be crucial in order to promote other job resources, such as learning opportunities (Van Ruysseveldt & Van Dijke, 2011). Social capital and an innovative learning climate

consider the individual as part of a collective activity in which knowledge and skills are shared. A high degree of decision latitude can be assumed to facilitate the gain from additional job resources such as social capital and innovative learning climate at work.

Hypothesis 4: There is a positive interaction between decision latitude and additional job resources such as social capital and innovative learning climate, increasing the likelihood of experiencing work-related flow.

2. Methods

2.1. Procedure and participants

Nine Swedish organizations were approached and agreed to participate in their entirety or with selected departments: a private production and a private care company, a government agency, a governmental organization, parts of a county council, parts of three municipalities and one municipality in its entirety. A questionnaire was sent out to 6394 employees during 2010-2011, and a total of $n = 3667$ answers were obtained, giving a response rate of 57%. Mean age was 47 years, and the majority of the employees had completed secondary (48%) or university (40%) education. The majority (67%) were female and $n = 204$ (5.5%) were born in a non-nordic country. The response rate differed between the organizations, ranging from 48 to 76%. The non-respondents did not differ in terms of gender (68% women) or age (mean age: 46 years). The distributions of gender and age among respondents and non-respondents, as well as the response rate across organizations, are shown in Table 1.

Table 1. Distributions across organizations: number of participants and response rate, mean age and percentage of women in relation to men among respondents and non-respondents

Organization	n	Respondents		Non-respondents		
		Mean age	Women (%)	Response rate (%)	Mean age	Women (%)
Public						
Municipality 1: care staff ¹	249	49	75	50	51	72
Municipality 2: high school personnel ²	352	50	64	56	51	56
Municipality 3: various occupations ³	809	49	87	51	48	16
Municipality 4: administrative staff	63	49	61	72	52	43
County council: hospital staff ⁴	39	47	97	57	51	96
Government authority: Social insurance officers	773	49	86	76	49	81
Government organization: government officers	173	47	41	66	45	23
Private						
Industrial company: assemblers, engineers	605	41	17	63	44	16
Private care company: care staff ⁵	604	46	75	48	44	72
Total	3667	47	66	57	47	65

¹ Eldercare staff, care and social workers

² Mainly teachers

³ Nurses, assistant nurses, teachers, administrative staff, cleaners, and other

⁴ Nurses, assistant nurses, physicians

⁵ Assistant nurses, carers

2.2. Measures

2.2.1. Psychological demands and decision latitude

Psychological demands and decision latitude were measured with the Swedish Demand Control Questionnaire, constituted by five items measuring psychological demands (e.g. does your job requires you to work very hard; do you have sufficient time for all your work tasks) and six items measuring decision latitude (e.g. do you have the opportunity to decide for yourself how to carry out your work; does your job require creativity; do you have the opportunity to learn new things in your work) (Karasek, 1979; Karasek & Theorell, 1990; Sanne, Torp, Mykletun, & Dahl, 2005). Internal consistency (Sanne et al., 2005; Karasek, Choi, Östergren, Ferrario, & de Smet, 2007), test-retest reliability (Aguilar, Mendes da Fonseca & Goncalves Valente, 2010; Mase, Ota, Inone, Iida, Tsutsumi, Yamasuya, & Ono, 2012), and convergent (Hökerberg, Aguiar, Reichenheim, Faerstein, Goncalves Valente, Fonseca & Passar) and concurrent validity (Karasek et al., 2007; Mase et al., 2012) have previously been found satisfactory. The internal consistency were in the present sample $\alpha = .80$ ($n = 3541$) for the demand scale and $\alpha = .70$ ($n = 3584$) for the decision latitude scale. For both scales, answers were given on a four-point scale (1: often; 4: never), and mean scores were calculated. The scales were dichotomized at the median and combined into one variable describing four different categories of jobs (i.e. active, high-strain, low-strain and passive), in accordance with previous research (Karasek & Theorell, 1990; Theorell & Karasek, 1996; Hammar, Alfredsson & Johnsson, 1998; De Lange et al., 2003; Belkic, Landsbergis, Schnall & Baker, 2004).

2.2.2. Social capital

Social capital at work (Kouvonen, et al. 2006) consists of eight items (e.g. People keep each other informed about work-related issues in the work unit; members of the work unit build on each other's ideas in order to achieve the best possible outcome), with answers ranging from 1

(do not agree at all) to 5 (fully agree). Social capital at work has previously been tested for convergent and divergent validity, and displays good within-unit agreement (Kouvonen et al., 2006). Mean scores were calculated, and the scale was also categorized into quartiles, in accordance with previous research (Kouvonen et al., 2006), ranging from high to low. The internal consistency of the scale was $\alpha = .90$ ($n = 3540$). Social capital at work was translated into Swedish by a translation-back translation procedure (Brislin, 1970). Three different translators independently translated the instruments and from these different translations a final version was agreed upon through a consensus process. The consensus version was translated back to English by a fourth translator and this translation was compared with the original version.

2.2.3. Innovative learning climate

An innovative learning climate was measured by an index based on the sum of seven items developed for the present study (e.g. In our department, we are recognized for new thinking and innovative work; it is easy to obtain sufficient resources if one wants to try out new ideas). The internal consistency of the scale was $\alpha = .85$ ($n = 3475$). Answers ranged from 1 (do not agree at all) to 5 (fully agree) and mean scores were calculated. The scale was also categorized into quartiles, ranging from high to low.

The correlation between social capital and innovative learning climate was highest among the predictor variables (psychological demands, decision latitude, social capital and innovative learning climate) included in the present study ($r .57$). Testing for multicollinearity, the variance inflation factor can be considered acceptable (VIF 1.70) (Hair, Black, Babin, & Anderson, 2010).

2.2.4.. Work-related flow

Work-related flow was measured by the Work-related flow inventory, previously assessed for test-retest reliability, convergent, construct and predictive validity, which were found satisfactory (Bakker, 2008). The scale consists of 13 items, and indicates whether individuals have experienced flow at work during the preceding two weeks, in terms of enjoyment, intrinsic motivation, and absorption (Bakker, 2005). As the work-related flow inventory was included in a larger questionnaire, answers on the original scale, ranging from never to always on a seven-point scale, were converted into a five-point scale (1: never; 5: always). Although reliability can be considered to increase with more scale points, this effect seems to level out beyond five points (Lissitz & Green, 1975). The internal consistency was in the present sample $\alpha = .86$ ($n = 3412$) and the scale was treated as a composite measure, measuring one underlying uni-dimensional construct. A mean score was calculated, indicating the frequency of work-related flow experiences during the past two weeks. The scale was also dichotomized, and the upper tertile of the average score of the scale was treated as an indication of having experienced flow during the last two weeks at work. Testing the upper quartile as a cutoff point did not alter the results. The work-related flow inventory was translated into Swedish by the same translation-back translation procedure (Brislin, 1970) as described above.

2.2.3. Control variables

Gender, age, educational level, and income were considered potential confounders. Age was treated as a continuous variable. Educational level was divided into four categories: primary, secondary, university education, and other (e.g. courses). Income level (€after taxes/month) was divided into four categories (<1745, 1745-2325, 2326-2908, >2908).

2.3. Data analysis

Differences in the experience of work-related flow between men and women, age-, educational-, and income groups, with respect to passive, active, high-strain and low-strain jobs and amount of social capital and innovative learning climate (high, medium high, medium low, low) were investigated using Pearson's chi-squared test.

The likelihood of experiencing work-related flow was calculated through binary logistic regression models. In a first model, the crude odds ratios for experiencing work-related flow were investigated in relation to the job strain categories, to social capital at work, and to an innovative learning climate. A second model adjusted for confounders.

In order to investigate the interaction effect between social capital/ an innovative learning climate and the job strain categories, differences in the outcome of work-related flow were compared for one exposure after stratification by level of the other (Hallqvist, 1996). Six new variables were created. Three of them combined high/low (dichotomized) social capital with 1) active and passive jobs; 2) low-strain and passive jobs, and 3) high-strain and passive jobs. In the same way, three variables were created combining high/low (dichotomized) innovative learning climate with the four job strain categories. Binary logistic regression was utilized and the jointly unexposed group (passive jobs and low social capital/innovative learning climate) was used as common reference group (Hallqvist, 1996). The models were adjusted for confounders.

All statistical analyses were conducted in SPSS version 19.0.

3. Results

A higher proportion of women than men experienced work-related flow, and there was an increase in the proportion experiencing flow with age, as well as with educational and income level ($p < .001$) (Table 2). A higher proportion of individuals in active and in low-strain jobs reported experiencing work-related flow compared with those in high-strain and passive jobs ($p < .001$). The proportions reporting high flow increased with a high degree of social capital at work, and with a high degree of an innovative learning climate ($p < .001$) (Table 3).

Table 2. Frequencies in percent (*n*) experiencing flow, with respect to age, gender, educational level and income.

		Flow % (<i>n</i>)	<i>p</i>
Age	18-29	22 (53)	
	30-39	29 (206)	
	40-49	34 (327)	
	50-59	38 (418)	
	≥ 60	44 (243)	<.001
Gender	Female	40 (988)	
	Male	24 (295)	<.001
Education	Primary	30 (92)	
	Secondary	31 (550)	
	University	41 (606)	
	Other	40 (32)	<.001
Income /month	<1745	29 (156)	
	1745-2325	33 (524)	
	2326-2908	40 (373)	
	>2908	41 (218)	<.001

Table 3. Frequencies in percent (*n*) experiencing flow, with respect to job strain category (passive, high-strain, low-strain and active); low, medium low, medium high, or high social capital; and innovative learning climate.

		Flow % (<i>n</i>)	<i>p</i>
Job strain category	Passive	22 (214)	
	High-strain	23 (234)	
	Low-strain	50 (405)	
	Active	52 (429)	<.001
Social capital	Low	20 (172)	
	Medium low	31 (292)	
	Medium high	36 (318)	
	High	53 (504)	<.001
Innovative learning climate	Low	21 (163)	
	Medium low	28 (277)	
	Medium high	36 (314)	
	High	54 (467)	<.001

The crude OR (model 1) shows that the likelihood of experiencing flow increases when being in active (OR 3.78, 3.08-4.64) or in low-strain jobs (OR 3.50, 2.85-4.29), compared with passive jobs (Table 4). Both social capital and an innovative learning climate display a dose-response association with flow. The higher the social capital and innovative learning climate, the higher the work-related flow. The associations from the crude model remain when also adjusted for confounders (model 2).

Table 4. Odds ratios and their 95% confidence interval for experiencing flow, with respect to passive, high-strain, low-strain and active jobs (reference category: passive); degree of social capital, and an innovative learning climate at work

	Model 1 (crude)		Model 2 ¹	
	OR	95% CI	OR	95% CI
Job strain category				
Passive	1		1	
High-strain	1.07	(.86-1.32)	0.97	(0.78-1.21)
Low-strain	3.50	(2.85-4.29)	3.15	(2.53-3.91)
Active	3.78	(3.08-4.64)	3.29	(2.62-4.12)
Innovative learning climate				
Low	1		1	
Medium low	1.47	(1.17-1.83)	1.63	(1.29-2.06)
Medium high	2.08	(1.67-2.60)	2.47	(1.95-3.13)
High	4.24	(3.41-5.27)	5.80	(4.57-7.37)
Social capital				
Low	1		1	
Medium low	1.85	(1.49-2.30)	1.82	(1.45-2.28)
Medium high	2.36	(1.90-2.93)	2.32	(1.85-2.91)
High	4.62	(3.75-5.70)	4.69	(3.76-5.85)

Method: enter.

¹*Adjusted for age, gender, education and income*

Experiencing high social capital in active jobs increased the likelihood of work-related flow to OR 6.84 (4.80-9.76) (Figure 1). Also in low-strain jobs, high social capital at work increased the likelihood of work-related flow to OR 6.86 (4.97-9.47). An innovative learning climate (Figure 2) in active jobs increased the likelihood of experiencing work-related flow to OR 9.37 (6.38-13.78), and in low-strain jobs to OR 9.13 (6.40-13.02). These associations are larger than the additive effects of each of the predictors (social capital/innovative learning climate, job strain category). In high-strain jobs, the effect of social capital (OR 2.42, 1.70-3.45) and innovative learning climate (OR 3.35, 2.23-5.05) is more or less equal to that of a high degree of these job resources in passive jobs, where both demands and decision latitude are low, and there is no incentive for the experience of work-related flow.

Figure 1. Interaction effects: odds ratios and their 95% confidence interval for the likelihood of experiencing work-related flow when having high versus low social capital in passive, high-strain, low-strain and active jobs. Reference group: passive jobs and low social capital

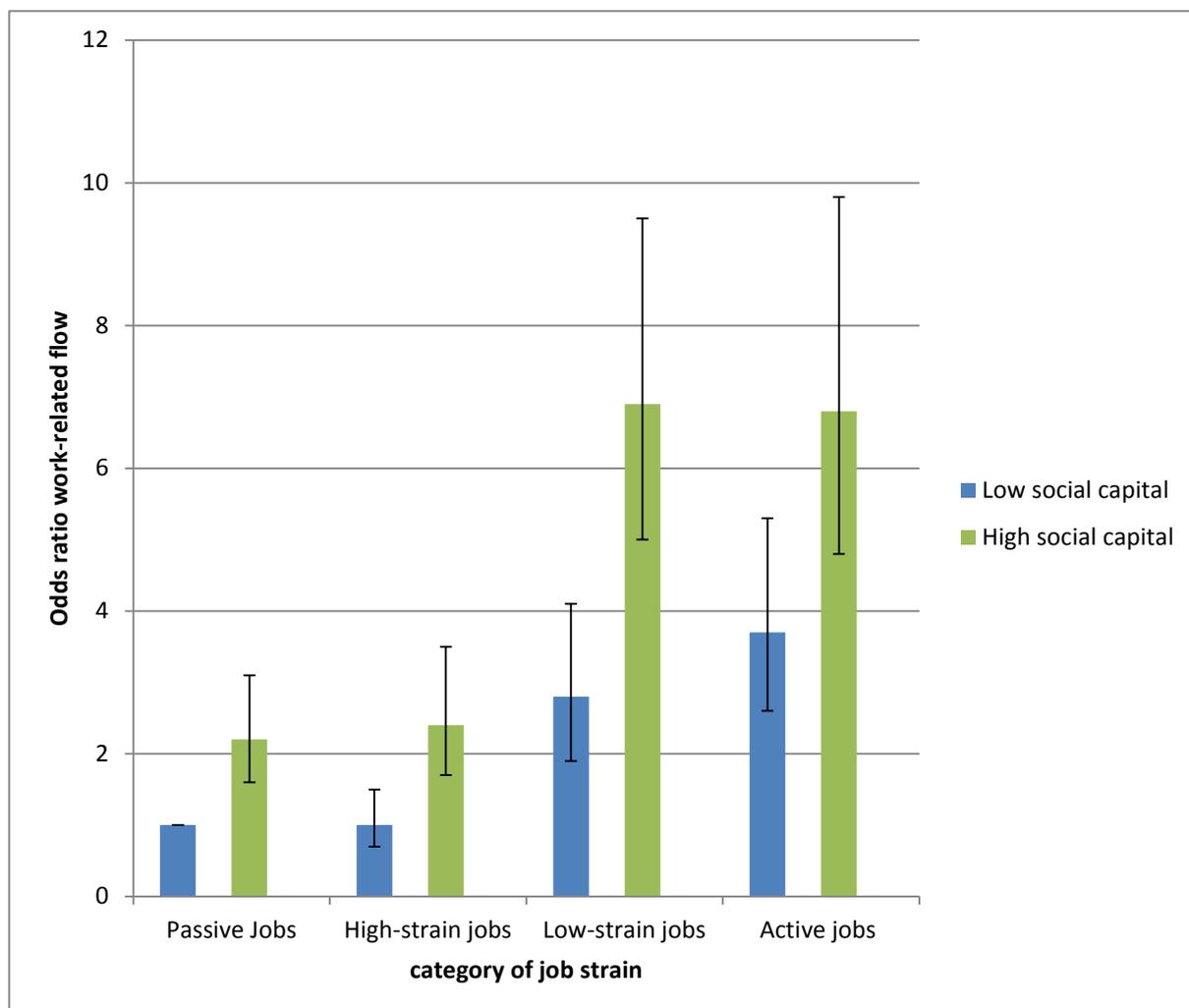
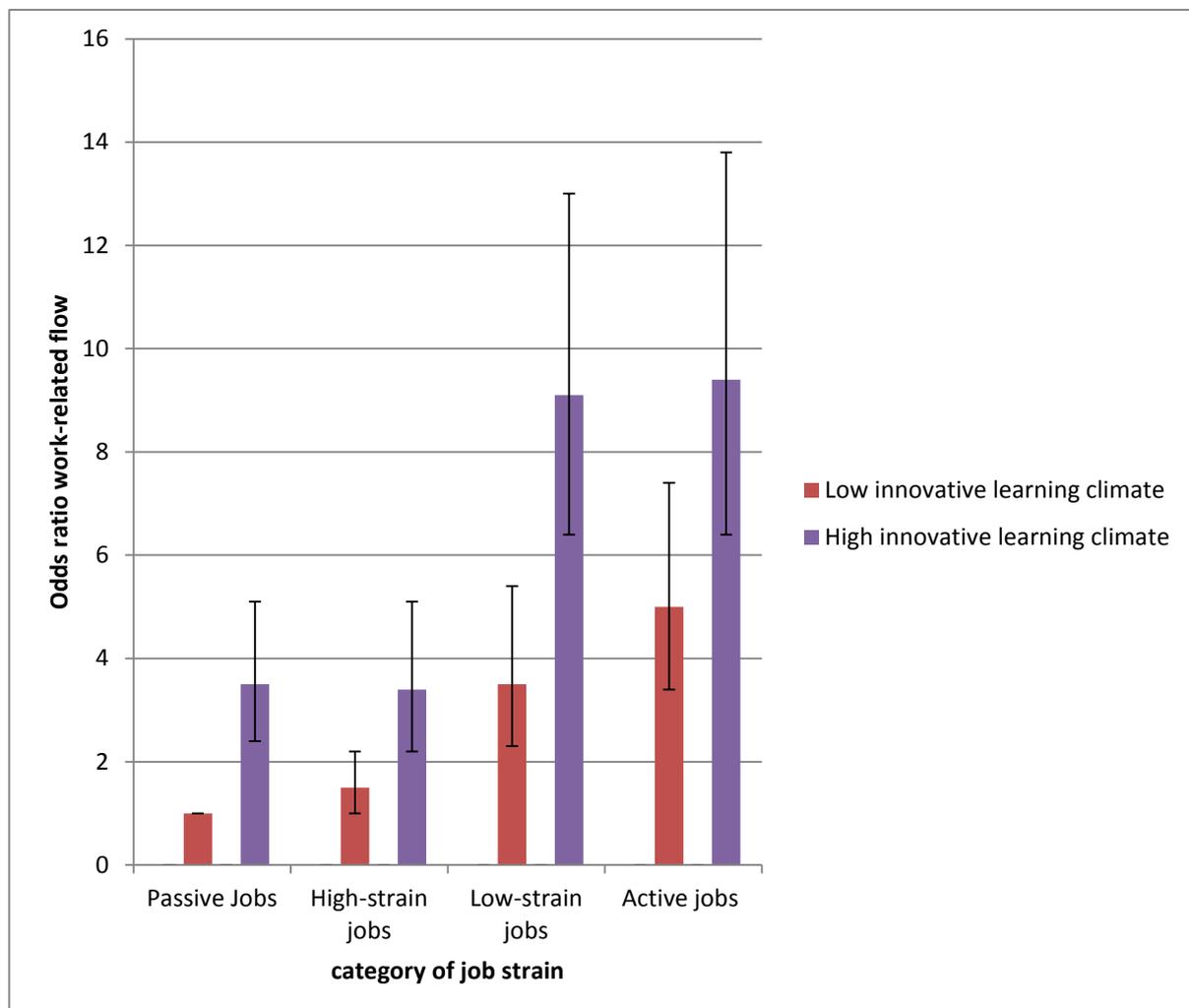


Figure 2. Interaction effects: odds ratios and their 95% confidence interval for the likelihood of experiencing work-related flow having high versus low innovative learning climate in passive, high-strain, low-strain and active jobs. Reference group: passive jobs and low innovative learning climate



4. Discussion

The present study investigated how work-related flow was related to the degree of demands and decision latitude at work, and to collective job resources such as social capital and innovative learning climate at work. Both active and low-strain jobs increased the likelihood of experiencing work-related flow, as did a high degree of social capital and innovative learning climate at work. A high degree of decision latitude enabled increased benefits from social capital and innovative learning climate on work-related flow.

Active jobs were found to increase the likelihood of experiencing work-related flow, confirming hypothesis 1a. These results support the demand-control model, which suggests that active jobs involve workers in demanding activities while experiencing a high degree of control and freedom to use skills, which makes it possible to perceive the high demands as positive challenges, and experience flow (Karasek & Theorell, 1990). This is also in line with the job demand-resources model, which considers decision latitude a job resource (Bakker & Demerouti, 2007). A high degree of job resources may facilitate work-related flow in terms of enjoyment, intrinsic motivation, and absorption in one's work (Bakker, 2008).

In support of hypothesis 1b, high-strain jobs were not associated with the experience of work-related flow. The likelihood of experiencing work-related flow increased in low-strain jobs; thus hypothesis 1c is rejected. This is contrary to previous research on job resources, job demands, and work-related flow. In low-strain jobs, decision latitude is high but demands are low. Flow has repeatedly been found to occur when facing high challenges with high skills (Moneta & Csikszentmihalyi 1996; Bakker, 2005), and job resources "boost" similar experiences as task enjoyment (Bakker et al., 2010) and work engagement (Bakker, Demerouti, Hakanen & Xanthopoulou, 2007), especially when job demands are high. It is possible that high challenges in low-strain jobs may be presented through other demands than

workload, work pace and conflicting demands, i.e. the demands accounted for by the demand-control model. According to the job demand-resources model, every occupation has specific job demands as well as job resources. Job demands are those aspects of work which require sustained effort or skills, and are therefore associated with psychological or physiological costs, such as emotionally demanding interactions with clients or work pressure (Bakker & Demerouti, 2007). However, it is also possible that challenges in low-strain jobs refer to other aspects than what is commonly considered as job demands. Flow is an experience that occurs when an individual is active and creative (Csikszentmihalyi, 1990), and, although opportunities for collaborative exploration and new learning are not considered job demands, it is possible that such activities create challenging situations in low-strain jobs.

Social capital and an innovative learning climate were found to increase the likelihood of experiencing work-related flow, in support of our second and third hypotheses. Social relationships and exchanges, cooperation, trust and reciprocity (Kouvonen et al., 2006), and encouragement of questioning, new thinking and the development of new procedures and structures at work (Engeström 2001; Ellström 2010) may provide opportunities to learn and develop competencies. Through these collective job resources it may be possible to experience job demands as positive challenges, and increase the likelihood of experiencing work-related flow. In a situation with low demands but a high degree of decision latitude, social capital and an innovative learning climate can facilitate challenges to the present state, new thinking and exploration, which may also create experiences of positive challenges in low-strain jobs.

In support of our fourth hypothesis, an interaction effect was found between the degree of decision latitude on one hand, and social capital and an innovative learning climate on the other. A high degree of decision latitude was found to enable increased benefits from these

collective job resources. A low degree of decision latitude hindered the use of these additional job resources. This indicates that decision latitude, social capital and an innovative learning climate are involved in the same mechanism, increasing the likelihood of experiencing work-related flow. These results expand the demand-control model and the job demand-resources model by considering the individual as part of a collective activity in which knowledge and skills are shared. In order to fully benefit from opportunities for collaboration and new learning, and increase the likelihood of experiencing work-related flow, it was found necessary for individuals to have the ability to control their own activities and use of skills. This stands in contradiction to the job demand-resources model, which proposes that job resources particularly gain motivational potential when demands are high (Bakker & Demerouti, 2007), and indicates that decision latitude, rather than the demands (as defined by the demand-control model), increase the likelihood of experiencing work-related flow. The results further indicate that the benefit from job resources such as social capital and innovative learning climate on work-related flow is dependent on the degree of autonomy and skill discretion experienced at work. Too high demands, in relation to the degree of autonomy, have previously been found to frustrate learning opportunities (van Ruysseveldt & van Dijke, 2011), presumably by reducing the time for new thinking and reflection (Ellström, 2001). High demands may be considered positive challenges which stimulate learning, given a sufficient degree of autonomy (van Ruysseveldt & van Dijke, 2011).

4.1. Strengths and limitations

The material for the present study comprises employees from nine organizations, likely to be representative for several occupational groups. With the exception of an innovative learning climate, all measures have been previously tested for validity and reliability.

As this is a cross-sectional study, no conclusions concerning causality can be drawn, and reversed causality must be considered; experiencing flow might influence the individual's perception of job resources and work conditions. In support of the present results, previous longitudinal studies have shown that job resources predict flow (Salanova et al., 2006). But there is also strong support for reciprocal relationships, where outcomes such as flow, motivation, self-efficacy and work engagement may affect the capability to recognize, mobilize and actively develop job resources (Salanova et al., 2006; Hakanen, Perhoniemi, & Toppinen-Tanner, 2008; Xanthopoulou, Bakker, Demerouti & Schaufeli, 2009). Active jobs have also been found to be associated with ill health (Lindström, 2005) and long-term sickness absence (Lidwall & Marklund, 2006). Longitudinal studies are necessary in order to investigate whether active and low-strain jobs are causally related to work-related flow, and their effect on health and well-being.

A second concern is the possibility of confounding variables not adjusted for, accounting for the variance in predictor as well as outcome variables. For example, the perceived importance of the activity (Engeser & Rheinberg 2008), and traits such as conscientiousness (Demerouti, 2006) and achievement orientation (Eisenberger, Jones, Stinglhamber, Shanock, & Randall, 2005), may influence the relationship between job resources and work-related flow. However, the experience of flow is attributable to situational characteristics rather than to dispositional factors, stable over time and place (Fullagar & Kelloway, 2009). Whether influenced by work conditions or types of people likely to occupy them, the present study indicates the importance of the perceived available job resources in order to experience work-related flow as well as to benefit from additional job resources.

Work-related flow is treated as a uni-dimensional construct, as suggested in previous research (Bakker, 2008). The internal consistency indicates that it captures one single underlying

dimension, and flow is considered a composite construct including all three aspects of absorption, enjoyment and motivation (Csikszentmihalyi, 1990; Bakker, 2008). Variations in the three sub-dimensions are possible; however, they are beyond the scope of this study. Another important consideration is that flow is by definition an optimal peak experience (Csikszentmihalyi, 1990). Although work-related flow has been measured retrospectively in previous research (Bakker, 2005; 2008; Demerouti, 2006), it can be questioned whether this is an adequate method for such experiences. However, the aim of the present study was not to investigate the specific predictors of the peak experience of flow, but to investigate how conditions at work were associated with a more frequent experience of flow as a positive experience at work and an indication of employee well-being in terms of employee work enjoyment, intrinsic motivation and absorption. The findings of this study add to the present literature and can be considered to be in concordance with previous research indicating that the peak experience of flow is influenced by clear goals, feedback, control, and the fit between skills and challenges (Csikszentmihalyi, 1990).

The cut-off point defining “flow” as the upper tertile of the scale also needs to be considered. A cutoff on the 75th percentile on each of the three sub-dimensions of the flow scale has previously been compared with associations to work conditions found with the continuous variable, revealing comparable associations, only weaker (Bakker, 2005). It is possible that the peak experience of flow has different associations with the degree of demands and resources.

4.3. Conclusion and implications

The experience of work-related flow is associated with high decision latitude at work, independent of the degree of psychological demands (i.e. active and low-strain jobs). The likelihood of experiencing work-related flow increases in situations with a high degree of social capital and innovative learning climate. These can be considered collective job

resources which shape the collective activity, develop interactions, facilitate trusting relationships and create openness to new ways of thinking and working, which may support the likelihood of experiencing work-related flow. The challenges that enable work-related flow might not only be the demands which are characteristics of active jobs, but also opportunities to interact, try new things and change the work situation. Importantly, the opportunity for individuals to control their own activities and use their skills enabled increased benefits from social capital and an innovative learning climate at work, while a lack of decision latitude hindered individuals from utilizing such additional job resources.

These results emphasize the importance of autonomy and skill utilization, in order to promote work-related flow and well-being at work. The present study also indicate the importance of a balance between demands for productivity and opportunities for employees to decide how to carry out their work tasks, as well as opportunities for learning and being creative at work. Flow matters for organizations as it is not only a positive experience for employees, but also related to job performance (Demerouti, 2006), as is the psychological well-being of workers (Coprano & Wright, 2001; Wright, Copranzano & Bonnet, 2007). The practical implication of this study has to do with how organizations can improve the organization of work so that the skills of employees are utilized and developed. Putting effort into increasing the decision latitude seems also to result in utilizing additional health promoting job resources such as social capital and innovative learning climate which supports employee well-being and may influence the creation of a health promoting organization.

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