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JOB DESIGN AND INNOVATIVE WORK BEHAVIOR

Enabling Innovation through Active or Low-strain Jobs

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Abstract

Promoting the innovative potential of employees is a main challenge for HR professionals. Previous studies already stressed the role of job design for employee innovativeness. Building on the work of Karasek & Theorell (1990), we focus on the relation between job design, work engagement and innovative work behaviour (IWB). The results show that job control is positively related to both IWB and work engagement, job demands are negatively related to work engagement, yet their relation to IWB is more ambiguous. Significant interaction effects between job demands and job control variables in both the relation with work engagement and IWB are found, yet their nature differs significantly. We find that active jobs (high control and high demands) are related to lower levels of IWB in comparison to low-strain jobs (high control, low demands), which has major managerial consequences.

Keywords: Innovative Work Behavior, Job Design, Time Pressure, Work Engagement, Employee Innovation

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Contents

1 Introduction	4
2 Literature Research	5
2.1 Innovative Work Behavior	5
2.2 The Job Design – IWB relation	6
2.3 Work engagement	7
2.4 Job design, work engagement & IWB	8
3 Methodology	9
3.1 Population	9
3.2 Measures	10
4 Results	11
4.1 Descriptive analyses	11
4.2 Regression results	13
5 Discussion & Conclusion	16
6 Limitations	17
7 References	18

1 | Introduction

Innovative capability is perceived to be a crucial asset for the durable competitiveness of both organizations and nations. Illustratively is that first flagship initiative of the European Union in its 'Europe 2020' strategy paper concerns the need to become an 'innovative union'. Yet, innovation does not only stem from R&D investments and technological inventions. Day-to-day innovations on the workplace are essential for an organization's survival and prosperity (Janssen, 2000; Oldham & Cummings, 1996). Therefore, HR-professionals, managers and social scientists seek to stimulate the innovative behavior of broad categories of employees. Multiple levers and antecedents for workplace creativity and innovative employee behavior have already been identified. A recent meta-analysis of Hammond et al. (2011) stressed the essential role played by the job design and job characteristics in promoting individual innovativeness. Already long before, work by Herzberg (1966), Hackman & Oldham (1980), Karasek & Theorell (1990) and recent studies of Bakker & Demerouti (2007) covered the relationship between job design and employee outcomes. Both Karasek & Theorell (1990) and Bakker & Demerouti (2007) categorized job characteristics in essentially two dimensions, job control/resources and job demands. They further stress the need to consider interaction effects between these categories in the relation between job design and employee outcomes. Job demands such as high time pressure are potentially stressful when employees don't have the capacities to answer the demands but can be challenging and motivating when an employee has a high degree of control over his work. Surprisingly, only few studies did focus on these interaction effects in the relation between job design with innovative work behavior (IWB) (Martín, Salanova, & Maria Peiro, 2007).

In this article we fill this literature gap as we focus on the job design-IWB relation. In doing so we concentrate on both the direct effects of job design on IWB as on the indirect effects of job design on IWB, through changed levels of work engagement. Building on the work of Karasek & Theorell (1990), we distinguish between job demands and job control and research their relations with IWB and work engagement. The predicted supreme effects of so called 'active jobs', combining high job demands and high control capabilities, is under special scrutiny.

The article starts by defining the concept 'Innovative Work Behavior' and stressing the possible double motivational nature of IWB. Next the article reviews the literature on the relation between job design on the one hand and work engagement and IWB on the other hand. Multiple hypotheses are proposed. Next, we discuss the measures and data used in the

empirical research. In the fifth part, the results of the data analysis are given with a special focus on the interactions and indirect relations between job design and IWB. After briefly discussing the limitations of the study, we conclude with a general discussion of the results and their practical relevance.

2 | Literature Research

2.1 Innovative Work Behavior

Innovative work behavior is here defined as

“all employee behavior directed at the generation, introduction and/or application (within a role, group or organization) of ideas, processes, products or procedures, new to the relevant unit of adoption that supposedly significant benefit the relevant unit of adoption”.

IWB thus includes behavior of employees that directly and indirectly stimulates the development and introduction of innovations on the workplace. Different authors distinguish different dimensions in the concept of innovative work behavior. Already Scott & Bruce (1994), building on the work of Kanter (1988), proposed three distinct dimensions: idea generation, championing and implementation of the innovation. Most later research took over this three dimensional view on IWB (Holman et al., 2011; Janssen, 2000; Messmann & Mulder, 2010). Other authors nevertheless conceived more dimensions in the IWB concept (e.g. de Jong & Den Hartog, 2010; Kleysen & Street, 2001). Yet, few studies can empirically distinguish between the different dimensions and thus use a single, additive scale for IWB in their analysis (Janssen, 2000; Salanova & Schaufeli, 2008; Scott & Bruce, 1998).

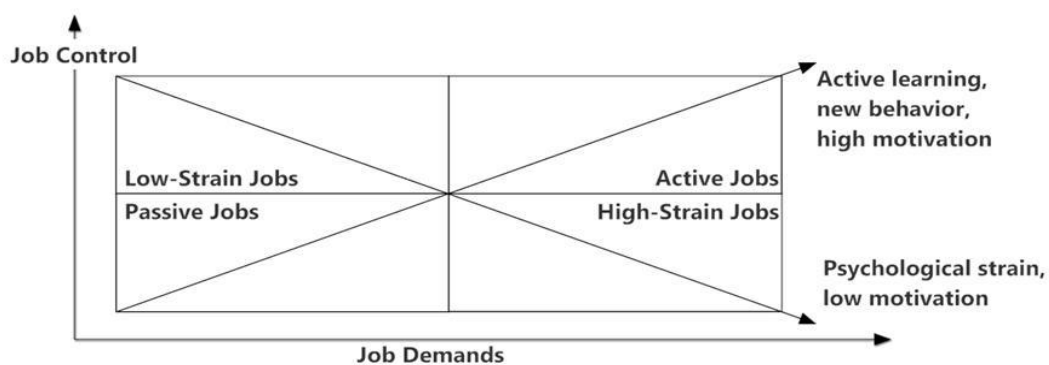
According to many researchers, contextual factors such as job design affect IWB through increased levels of motivation (Amabile et al., 1996; Shalley, Zhou, & Oldham, 2004). This approach is reflected in various empirical studies which study the effect of different factors on IWB, through a changed level of motivation (Carmeli & Spreitzer, 2009; Yuan & Woodman, 2010). Yet, various other studies stressed that IWB is not only triggered by high motivation, but can be part of a coping strategy in order to reduce negative effects of high job demands (Janssen, 2000) or job dissatisfaction (Zhou & George, 2001). IWB therefore assumingly has a double motivational nature (Martín et al., 2007). On the one hand, employees engage in innovative activities as a genuine optimization effort rooted in high

levels of motivation and a challenging job. On the other hand, they also engage in innovative strategies when they face low motivation, high pressure and strain. Innovative behavior is then a part of an employee strategy to smoothen the work process in order to reduce the experienced work strain. As this study focuses both on the relation of job demands in combination with high and low levels of job control and on the direct and indirect relation of job design to IWB running partly through work engagement, indications for such a double motivational nature of IWB are under study.

2.2 The Job Design – IWB relation

Building on the work of Karasek & Theorell (1990) we approach job design with a focus on job demands on the one hand and aspects of control on the other hand. Job demands refer to job aspects that require sustained, physical or psychological effort of the employee. Job demands aren't necessarily negative but can turn into job strain and stress if the employee doesn't have sufficient means to answer the demands (Bakker & Demerouti, 2007). Aspects of job control refer to the decision latitude of the employees in performing their job. Building on these two axis, four different types of jobs are identified as illustrated in figure one. Passive jobs are jobs which combine low demands and low control. Low strain jobs are a combination of high control and low demands, active jobs combine both high demands and high control and high-strain jobs at last combine high demands and low control (see Figure 1).

Figure 1 - Karasek model



From this, Karasek (1979) develops two main hypotheses. First, the 'strain hypothesis' predicts that the most negative outcomes are associated with high-strain jobs. The second hypothesis, the 'learning hypothesis', predicts that activation and learning are associated with

active jobs which combine both high demands and high resources. Research predominantly focused on the first hypothesis and less so on the second (Witte, Verhofstadt, & Omey, 2007). Moreover, most research related to the 'learning hypothesis', used motivation or work engagement as a outcome variable. Using the Karatek (1979) model as a basis, this article researches the association between job design and positive employee outcomes, namely work engagement and innovative work behavior. We approached the job control concept referring to autonomy in the workplace, to the degree in which the employee has responsibility to organize the job himself and to the degree in which an employee is able to develop his professional skills in the job. We also included a negative indicator of job resources, routine work. Job demands are approached here using two concepts: time pressure and emotional pressure.

2.3 Work engagement

An optimal job design should contribute to the work engagement of the employee, the feeling of being challenged by the work and having sufficient resources and capabilities to answer these challenges and demands. We therefore use the concept of work engagement conceptualized by Kahn (1990) and used in various studies (e.g. Salanova & Schaufeli, 2008). It can be defined as follows: *"Engagement is defined as a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption"* (Schaufeli, Salanova, González-Romá, & Bakker, 2002). Building on the previously described theories we assume that job control variables as autonomy, organizing tasks and learning opportunities, will be positively related to work engagement as they give a sense of self-determination, crucial for the intrinsic motivation of employees (Deci & Ryan, 2000). Empirically autonomy is already linked to idea generation and implementation by various studies (Krause, 2004; Ramamoorthy, Flood, Slattery, & Sardesai, 2005; Slåtten & Mehmetoglu, 2011). As routine work is a negative indicator for job control, the relation between routine work and work engagement will be negative.

Hypothesis 1: 'Job control is positively related to work engagement'

Job demands like time pressure and emotional pressure, put pressure on the motivation of employees. Yet, when combined with sufficient amounts of job control, this potential negative effect will be reduced and can even turn positive. Job control assumingly thus not only buffer the negative effects of job demands but when they are combined, result in even more motivated employees. So called 'active jobs' which combine high job control and high

job demands thus produce the most beneficial outcomes, they should be preferred over 'low strain' jobs (high control, low demands), passive (low control, low demands) and high strain jobs (low control, high demands).

Hypothesis 2: 'Job demands are negatively related to work engagement'.

Hypothesis 3: 'Job control buffers the negative relation between job demands and work engagement'

2.4 Job design, work engagement & IWB

Feeling intrinsically motivated at work is considered as the core antecedent of workplace creativity and innovation by various authors and empirical studies (Amabile et al., 1996; Carmeli & Spreitzer, 2009; Shalley et al., 2004; Yuan & Woodman, 2010). High levels of work engagement result in a greater openness to experiences and ideas on how to optimize and change the work process of products. It also serves as a motivational bases to further develop, defend and implement innovative ideas and can thus be assumed to be positively related to overall IWB.

Hypothesis 4: 'Work engagement is positively related to IWB'

Regarding the relation between job control and IWB, Ohly et al. (2006) and a meta-analysis of Unsworth et al. (2005) previously found positive relations between autonomy & creativity. Parker et al. (1997) similarly found that autonomy increases the flexible job orientation of employees and the making of suggestions for improvements. Yet, Basu & Green (1997) couldn't find any significant relation between autonomy and IWB, but this was probably caused by contextual factors as the sample consisted of mostly assembly line employees. Nevertheless, sufficient indications are present to assume that autonomy will be directly and positively related to IWB.

Hypothesis 5: 'Job control is positively related to IWB'

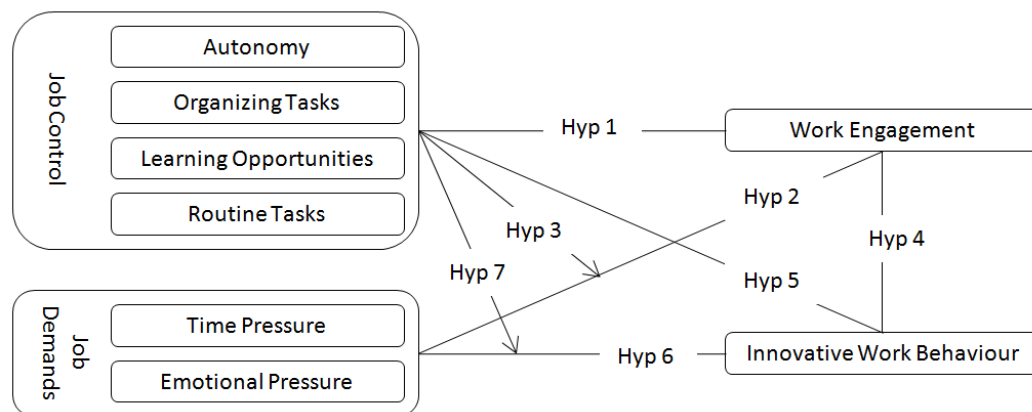
Where the relation between job control and IWB is assumed to be rather straightforward and positive, this is not so for the job demands. As previously mentioned, IWB is assumingly not only rooted in positive motivations but can also be triggered by problems regarding the workload or complexity of the job. Yet, the potential negative effect of these job demands on employee motivation and engagement is equally well documented. Empirical research generally points to the multiple interaction effects in the relation between job demands and

employee outcomes. Janssen (2000) found a positive relation between job demands and innovative work behavior when perception of effort-reward fairness was high. Martin et al. (2007) clearly found that high job demands can lead to higher individual innovation when job control is high. Further Fritz & Sonnentag (2009) found that job stressors are positively related to proactive work behavior. A meta-analysis of the experimental studies on the relation between stressors and creativity found that the relation is highly complex and dependent on how stress-inducing the stressor is (Byron, Khazanchi, & Nazarian, 2010). Indeed, the level of stressors matters as much as the type of the stressors and the context of the stressors. High time pressure or emotional pressure can negatively affect innovative work behavior when the employee doesn't have a sense of control over the work situation while the relation can be positive in the other case. We therefore assume to find a direct positive relation between job demands and IWB, but at the same time an important interaction of job control in the relation between job demands and innovative work behavior.

Hypothesis 6: 'There is a positive relation between job demands and IWB'

Hypothesis 7: 'Job control strengthens the positive relation between job demands and IWB'

Figure 2 – Hypotheses



3 | Methodology

3.1 Population

The data used to test the above mentioned hypotheses were obtained through a survey completed by 952 employees from 17 different companies from various industries of the

Flemish region in Belgium. The data were gathered in organizations participating in a social innovation project sponsored by the ESF (European Social Fund), before any intervention took place. The surveys were distributed to all employees who would participate in the upcoming project. The response rate was 53%. As the survey was distributed in the context of a ESF call, the motivation and involvement of the organizations was high, which led to a unusually high response of the employees. Still, 59 surveys were left out of consideration due to frequent missing data. Of the total of 893 usable surveys, 48% was completed by male respondents. 60% of the respondents had a degree of at most higher secondary education. The average age of the respondents was 39 years old (median 40y and modus 31y). Further, 41.70% of the respondents were employed as blue-collar workers and 50.05% as white-collar employees. The rest was employed as agency worker or members of the management. 70.22% of the respondents were engaged as a full-time worker.

3.2 Measures

All measures were included in a paper-and-pencil survey using 5 point Likert scales ranging from 'totally agree' to 'totally disagree'. All job demands and job control measures were taken from the Dutch 'VBBA' survey (van Veldhoven et al., 2002). Job control is measured by employee autonomy and organizing tasks. The measure for autonomy included eight items including questions like '*I can arrange my own work pace*'. Organizing tasks is measured using four items including '*I discuss how the tasks are to be planned with others*'. Learning opportunities is measured four items including '*By doing my job, I learn new stuff*' and '*I have the opportunity to develop my professional skills*'. At last, routine work is measured using three items including questions like '*my job is tedious*'. Job demands were measured using items referring to time pressure and emotional pressure. Time pressure is measured using four items including questions like '*I have to hurry on my job*' and '*I have to work under time pressure*', and the three items referring to emotional pressure included questions like '*My work is heavy from an emotional point of view*' and '*My job puts me in emotional situations*'. Innovative work behavior is measured using an adaption of the questions used by Scott and Bruce (1994), Janssen (2000) and De Jong & Den Hartog (2010). Respondents indicated how much something occurred in their job, ranging from 'very rarely' to 'very frequent'. Sample items are '*finding original solution for work related problems*' and '*developing innovative ideas into practical applications*'. Work engagement is measured using a nine items developed by Salanova & Schaufeli (2008) including questions like '*If I'm working I'm feeling fit and strong*' and '*I'm proud on the work I'm doing*'. Further, control variables such as gender, age, educational level and sector of activity are included.

4 | Results

4.1 Descriptive analyses

After omitting the partially completed surveys from the database, all 5 point scales were put in the same direction and rescaled on an easy to interpret scale going from zero to ten. Negatively worded items were reversed and a first exploratory data analysis was performed.

In a first step, an exploratory principal factor analysis is performed on all the evaluation questions included in the survey. This factor analysis partly confirmed the previously defined concepts. For some scales, superfluous or ambiguous items were excluded. Cronbach alpha's of the found factors are all but one (routine work) higher than 0.80 indicated a high reliability. The Cronbach alpha of routine work is slightly lower than 0.70 indicated moderate reliability. This finding is in line with other research which also finds routine work to be an ambiguous variable with rather low reliability (Karasek et al., 1998). In line with the suggestions made by Mortelmans & Dehertogh (2008), restrictive summated scales were computed for the found factors in order to include observations with some missings but delete observations with multiple missings on the items. This method also keeps the 10 point scale and thus facilitates the interpretation of the results. Correlations between the different variables are given in table 1. An extra exploratory factor analysis is performed on the items related to IWB in order to check for the dimensions as proposed by the literature (e.g. de Jong & Den Hartog, 2010; Kleysen & Street, 2001). Yet, building on the EFA results and the literature (Janssen, 2000; Scott & Bruce, 1994) a single additive scale is computed for IWB. Means, standard deviations, alpha's and correlations between the different scales are given in table 1.

Table 1 - Correlation matrix

	Cr α	M	Std	1	2	3	4	5	6	7	8
1 Age		39,29	10,05								
2 Autonomy	0,84	5,95	1,81	0,03							
3 Organizing Tasks	0,83	5,03	2,22	0,00	0,42*						
4 Learning Opportunities	0,82	6,87	1,96	-0,10	0,30*	0,42*					
5 Routine Work	0,68	3,28	2,27	-0,01	-0,24*	-0,31*	-0,34*				
6 Time Pressure	0,80	5,70	1,95	0,02	0,00	0,11*	0,08 ^p	-0,13*			
7 Emotional Pressure	0,88	4,51	2,47	0,00	0,03	0,23*	0,11 ^p	-0,13*	0,32*		
8 Job engagement	0,94	6,52	1,89	-0,01	0,19*	0,24*	0,48*	-0,19*	-0,08 ^p	-0,06	
9 IWB	0,96	4,80	1,61	-0,06	0,27*	0,46*	0,46*	-0,24*	0,14*	0,21*	0,33*

* significant at the <,001 level, ^p significant at the 0,05 level

Table 2 - Regression analyses

	Work Engagement						IWB					
	Step 1		Step 2		Step 3		Step 1		Step 2		Step 3	
	Beta	Sign	Beta	Sign	Beta	Sign	Beta	Sign	Beta	Sign	Beta	Sign
Control												
Education	-	0,002	-	0,005	-	0,002	-	0,021	-	0,008	-	0,011
Age	-0,010	0,155	-0,003	0,680	-0,002	0,697	-0,008	0,165	-0,003	0,507	-0,004	0,400
Company	-	0,010	-	0,002	-	0,003	-	<,001	-	<,001	-	<,001
Work status	-	0,500	-	0,041	-	0,053	-	<,001	-	0,009	-	0,011
Job Resources - Demands												
Autonomy			0,068	0,066	0,064	0,084			0,029	0,319	0,042	0,163
Organizing Tasks			0,069	0,035	-0,096	0,237			0,174	<,001	0,188	<,001
Learning Opportunities			0,415	<,001	0,392	<,001			0,268	<,001	0,392	<,001
Routine Work			-0,072	0,019	-0,239	0,002			-0,030	0,222	-0,040	0,105
Time Pressure			-0,085	0,012	-0,103	0,000			0,010	0,722	0,236	0,005
Emotional Pressure			-0,115	<,001	-0,070	0,023			0,043	0,047	0,057	0,010
Work Engagement									0,126	<,001	0,144	<,001
Interactions												
Time Pressure * Organizing Tasks					0,030	0,024						
Time Pressure * Learning Opp.											-0,032	0,005
R ²	0,075		0,319		0,324		0,141		0,396		0,402	

Note: Missing beta coefficients for Education, Company & Work Status are due to the categorical character of the variables.

4.2 Regression results

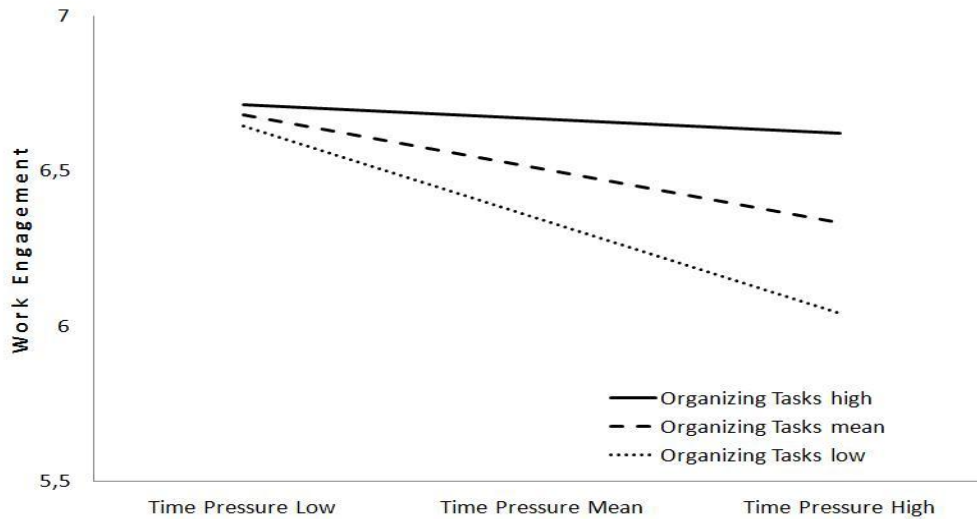
Two separate multiple regressions were performed on the relation between job design and IWB on the one hand and work engagement on the other hand. The regression analysis is performed in five steps. In the first step, control variables regarding education, age, company and work status were introduced in the model. In the second step job control and demands variables were introduced in the model. In the third step we included multiple interaction effects between job control and job demands variables. The most significant interactions were selected and the least significant were deleted in the fourth step. At last, only in the regression for IWB, we included the relation of work engagement on IWB.

Focusing first on the different R^2 values given in table 2, we see that the model is able to explain a good proportion of the variation in innovative behavior of employees and employee work engagement. The full model accounted for respectively 40.2% of the variation for IWB and 32.4% of the variation of work engagement. This confirms the observations made by Hammond et al. (2011) that job design is a very strong predictor for individual employee behavior and attitudes.

Using the outcomes of the multiple regression analysis we check the validity of our hypotheses. Our first hypothesis is confirmed as in both model 2 and the full model (model 3), the job control variables (autonomy, organizing tasks, learning opportunities) are positively related to work engagement. The negative indicator for job control, routine tasks, is negatively related to IWB. The fact that organizing tasks has a negative and insignificant beta in model three is due to the introduction of the positive interaction effect. Also hypothesis two and three are confirmed as we find both negative effects of job demands on work engagement and a significant interaction effect between a job control variable and a job demands variable, namely organizing tasks and time pressure. We graphically plotted this interaction effect in order to increase the interpretability using the guidelines of Aiken & West (1991) as can be seen in figure 3. From the illustration we can clearly see that organizing tasks buffer the negative relation between time pressure and work engagement. If we compare these results with Karasek's (1978) suggestion that active jobs (combining high control and high demands) lead to supreme levels of employee motivation, we only see a partial confirmation of Karasek's hypothesis. According to this data, there is almost no difference in work engagement between employees in active jobs and employees in low-strain jobs. The difference between high-strain and passive jobs in terms of work

engagement is nevertheless significant with the latter being related to higher levels of work motivation than the former.

Figure 3 - Interaction Time Pressure*Organizing Tasks on Work Engagement



Hypothesis 4 is confirmed as we find a solid positive relation between work engagement and IWB. Hypothesis 5 is partly confirmed. Two of the three positive job control variables, organizing tasks and learning opportunities, are significantly related to IWB and have a positive sign. The relation between autonomy and IWB is nevertheless insignificant. The negative variable for job control is negatively related to IWB, yet not statistically significant. The relation between job demands and IWB (hypothesis 6) is more complex than we assumed in our hypotheses. The results of the second model show that the job demands variables are ambiguously related to IWB. Time pressure does not significantly relate to IWB and emotional pressure only weakly positive. Yet, with the inclusion of the interaction effects in model three, we see that time pressure becomes a highly significant variable in explaining IWB. This confirms the importance of checking for interaction effects in order to well understand the job design IWB relation. Hypothesis 7 is fully confirmed as we found a significant interactions between job control and job demands variables, namely between learning opportunities and time pressure. Again, we plotted these relations in figure 4.

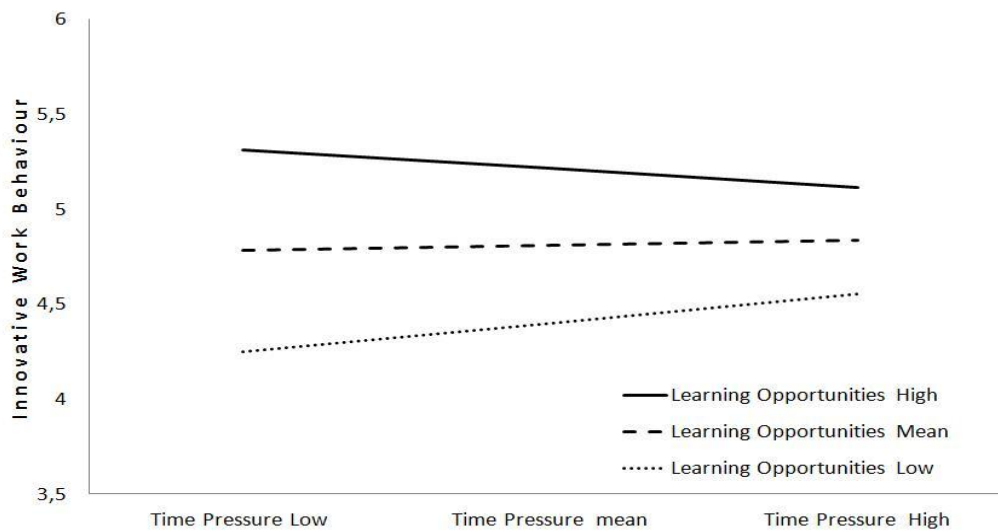


Figure 4 - Interaction Learning Opp.*Time Pressure on IWB

Figure 4 clearly shows a different pattern than figure 3. The largest difference in terms of IWB is found between employees in jobs with high control in comparison to employees in low control jobs. The role of job demands (time pressure) depends, as hypothesized, on the degree of job control, but in a surprising way. When job control is high, high job demands are associated with lower levels of IWB than low job demands. Contrary to Karasek's (1979) affirmation that active jobs "leads to development of new behavior patterns both on and off the job", our data suggests that innovative work behavior is more frequent with employees in low-strain jobs (high control, low demands) than with employees in active jobs (high control, high demands). Moreover, the relation between job demands and IWB, when job control is low, is positive. This means that employees in high-strain jobs (high demands, low control) are more induced to behave innovatively than employees in passive jobs (low demands, low control). These passive jobs are nevertheless associated with the lowest levels of work engagement as seen previously in figure 3. Our observations suggest indeed that innovative work behavior in high-strain jobs is probably part of a coping strategy of employees to reduce the experienced work strain.

Further, we observed that work engagement is positively related to IWB. Yet, we also observe that job demands are negatively related to work engagement, while both work engagement and job demands are positively related to IWB. We observe, for both time pressure and emotional pressure, a strong direct positive relation between the job demands variables and IWB, which is countered by a negative indirect relation running through a

reduced work engagement. Routine work on the other hand is both negatively related to work engagement and to IWB.

5 | Discussion & Conclusion

As innovation is central in the current discourse on how to keep the European companies competitive and affluent, the individual innovative contribution of employees is to be stimulated. The meta-analysis of Hammond et al. (2011) stressed the central role of job design in explaining employee innovativeness. This article further developed the relation between job design and IWB and specifically searched for indirect and interaction effects.

Using the traditional theory on job design of Karasek & Theorell's (1990) Job Demands-Control model, a series of hypotheses were developed on the relation between job design, work engagement and innovative employee behavior. Using multiple regression analysis, we observed that two job control variables (organizing tasks and learning opportunities) are positively related to work engagement and IWB. Autonomy was insignificantly related to IWB and very weakly to work engagement. The negative indicator for job control, routine work, didn't significantly relate to IWB but negatively affected work engagement. Job demands (emotional pressure and time pressure) are negatively related to work engagement, while their relation to IWB is very mixed. Possibly, a distinction should be made between different types of job demands as, proposed by Van Den Broeck et al. (2010), between job hindrances and challenges. Here, the first category is hard to overcome yet the second can be stimulating if combined with sufficient control.

When searching for interaction effects, we found significant interaction effects between job demands and job control in both the relation to IWB and work engagement. For work engagement, organizing tasks served as an effective buffer in the negative relation between time pressure and work engagement. For IWB, the interaction effects are more complex. Here, the highest degrees of IWB were found in low-strain jobs, combining high control and low demands. Active jobs which according to Karasek (1979) would lead to new kinds of employee behavior, are therefore not superior in terms of IWB. Facing low demands intensity, employees assumingly have the time and space to think about alternatives, experiment with work procedures and therefore come up with practical innovations. Nevertheless, it should not be left out of consideration that the main difference in terms of IWB is found between jobs with high control and jobs with low control.

As this study observed that employees in high-strain jobs tend to show more innovative behavior than employees in low-strain jobs, and that job demands are both directly and

indirectly related to IWB, we can interpret these results as a solid empirical proof for the existence of two sorts of triggers for IWB. On the one hand innovative behavior is triggered by high degrees of employee motivation and high job control and on the other hand, IWB is triggered by a lack of job control in combination with high demands. Yet, in terms of levels of IWB, the first trigger is far superior to the second.

These findings have important managerial consequences. HR policies focusing at increasing the innovative behavior of employees should first and foremost focus on enhancing the employee's control over his work task. Yet, active jobs are inferior in terms of IWB as compared to low-strain jobs. Keeping the amount of job demands low thus enables employees to fully utilize their innovative potential.

6 | Limitations

The primary limitation is the cross-sectional character of the study, which makes any causal pretention impossible. Reverse causality is therefore possible. It could well be imagined that employees who behave innovatively receive more autonomy and learning opportunities in their workplace. Further, the measurement of IWB as a unitary concept is troublesome given the various studies that stressed the need to distinguish between the different dimensions of IWB (de Jong & Den Hartog, 2010; Kleysen & Street, 2001). Next, a single method is used to measure all the used concepts in this analysis. Different authors suggested that this could inflate associations between concepts, yet others state that this problem is not to be overestimated (Spector, 2006). Moreover, finding interaction relations in the data makes a problematic common method bias very unlikely (Siemsen, Roth, & Oliveira, 2010). Future research should further develop the presented model and confirm the findings using multi-source data. The inclusion of variables referring to the employment relation of the employee with the employer could further enrich the insight in how to stimulate innovative behavior of employees.

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