Improving job engagement: A survey of blue- and white-collar workers in an medium-sized manufacturing firm

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Abstract

Work engagement is important as it contributes performance. Previous studies have shown that blue-collar workers are less engaged than white-collar workers, which highlights the need to focus on ways to improve the work engagement of blue-collar workers. This paper tests whether different perceptions of job resources is an important driver of the differences in work engagement between white and blue-collar workers. Using a survey of 153 workers in a medium-sized manufacturing firm, the paper shows that job resources, especially work environment and career opportunities, have a great potential to increase the work engagement of blue-collar workers.

Keywords: Work engagement, Job resources, blue-collar workers, white-collar workers, Survey

Introduction

Work engagement is a concern for most managers, as highly engaged employees are more likely to contribute to organisational goals. Previous studies have indeed found that having highly engaged workers is of high importance for both individual performance (Schaufeli et al, 2006) as well as overall organisational performance (Whittington and Galpin, 2010). However, studies have found that blue-collar workers tend to have a lower degree of work engagement than white-collar workers (as indicated by Kanten and Sadullah, 2012).

Bakker et al. (2008) found that job resources are a very important driver for increased work engagement. Job resources are factors such as support from colleagues and

supervisors, performance feedback, skill variety, autonomy and learning opportunities (Bakker and Demerouti, 2009).

Although job resources are available to blue- and white-collar employees alike, they might not always be accessible to the same extent for blue-collar workers. Blue- and white-collar worker may also perceive job resources differently, which in turn may impact their work engagement. This paper proposes that a major driver of the differences in work engagement between white and blue-collar workers is different perceptions of job resources. The purpose of this paper is thus to test whether the level of available job resources differ between white and blue-collar workers and what the effects are on work engagement. The following objectives were developed in order to guide the study:

Objective 1: To investigate to what extent blue- and white-collar workers differ in terms of (a) job resources, (b) how engaged they are at work.

Objective 2: To test to what extent work engagement is driven by work position (being white- or blue-collar), and/or job resources and. In other words, is it the fact that the employee is a white- or blue-collar worker that influence their level of engagement, or is rather differences in perceived job- and personal resources?

Objective 3: To find out which perceived job resources are likely to increase perceived work engagement for blue-collar workers the most.

The papers is arranged as follows. The next section briefly reviews the literature on work engagement, job resources and perceptions theory, and the following section describes the methods used in the paper. The fourth section provides the findings, the fifth a discussion and finally the sixth section comprised the conclusions.

Work engagement

In this paper the term work engagement will be used and refers to "…a positive, affective-motivational state of fulfilment that is characterized by vigour, dedication, and absorption " (Schaufeli, 2001). Work engagement tend to be relatively low for blue-collar workers, and high in white-collar workers (Kanten and Sadullah, 2012).

Job resources are strong predictor, higher than e.g., job demand, of work engagement (Mauno et al, 2007). The strong link between both job resources and work engagement was also confirmed by Xanthopoulou et al (2009). Similarly, Kanten and Sadullah (2012) reports that Quality-of-work, which shares many of the same features with the job- and personal resources concepts, is a strong predictor of work engagement.

However, previous studies have not tested the link between work position and work engagement *in relation* to the stronger link between job- and personal resources.

Job resources

Job resources are those aspects of a job that helps achieving work goals, reduce job demands and stress, as well as stimulate personal growth (Schaufeli and Bakker, 2004). Several previous studies have indeed shown that several job resources relates positively to work engagement (Xanthopoulou et al, 2009). As mentioned in the methods sections, we aimed at minimising the number of questions, while still covering the three aspect mentioned above. This resulted in in 9 questions, covering all three aspects (table 2).

Although job resources are distributed throughout the firm, not all employees experiences that they can access to them to the same extent. This may be because either blue-collar workers do not *have* access to the, or they *perceive* the resources differently that white-collar workers.

Perception theory

Perception is one of the most important psychological factors affecting human behaviour and is described as the process of selecting and screening of stimuli (Ahmad et al., 2008). According to Luthans (Luthans, 2002) perception is a very complex cognitive process that acts as a 'filter' of reality, forming an individual's world view. It is largely learned and highly personal, since no one has the same learning and experience, thus any given situation may produce different individual behaviours by the actors in the circumstances. He further indicated that perception is defined by a complicated interaction of selection, organisation, and interpretation and is modified by cognitive processes and external stimuli (past and current), which suggests that blue-collar workers may perceive things like job resources differently than white-collar workers. Aurell (Aurell, 1979) explained that during perception the individual undergoes a concomitant process of the inner and outer levels of consciousness through receptors (linking the consciousness to external stimuli). Perception in this sense is a unique interpretation of the situation and not an exact recording (Ahmad et al., 2008).

Based on the previously mentioned literature, we formulate the following hypotheses:

H1: Blue-collar workers experience lower work engagement than white-collar workers

H2: Blue-collar workers experience that they have less job resources than white-collar workers

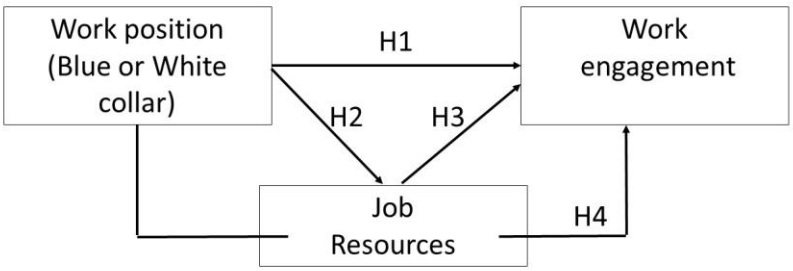
H3: Job resources are strongly associated with work engagement

Some blue-collar workers may experience that they have as much job resources as white-collar workers, and it is also expected that the effects of job resources is significantly higher than work position. Thus, it is reasonable to expect that job resources may mediate the effects of work position on work engagement. The fourth hypothesis is thus:

H4: Job resources mediates the link between work position (blue- or white-collar) and work engagement.

The research model and the hypotheses are illustrated in figure 1.

Figure 1: Research model



Methods

In order to study drivers for- and differences in work engagement between blue- and white-collar employees, a case study company with roughly similar share of both categories was desirable. Moreover, having both categories present in the same location reduces the risk of a large influence from the surrounding area on one group: Consider

for example having production in a run-down industrial area while having R&D performed at a fashionable location.

The selected company is based in Sweden, which traditionally has smaller hierarchical and cultural distances between blue- and white-collar employees, which reduces the impact of these two factors. A manufacturing company located in a medium sized city in Sweden was thus selected as it conforms well to the selection criteria. The size of the company was also sufficiently large to provide enough data from individuals employees, while being small enough for all key personnel to be included. The company has 165 employees.

The data collection was done in two steps: first interviews with selected employees and a survey covering all employees.

Interviews

A key informant was assigned at the case study company and was also the first person to be interviewed. The key respondent was the factory manager and had a long experience of working in the company. In dialogue with the key informant, 10 other people from different departments and with different work positions (both blue- and white-collar) at the factory were selected for interviews. The semi-structured structured interviews were aimed at getting a clear picture of the company and its employees before starting the survey.

Survey

The questionnaire was developed using the theory mentioned in previous section. The questionnaire was designed as short as possible as it was deemed necessary to achieve as high response rate as possible, due to the relative small size of the population (164 employees). To ensure sufficient data for statistical analysis, nearly all employees needed to answer the survey. A response rate of 93 % was achieved, due to the mentioned compressed survey design and with the help of the factory managers who helped distribute and encourage all employees to fill in the questionnaire. The work positions and the number of responses can be seen is table 1. Note that operators and installation technicians have been combined as "blue-collar" workers in further analysis, and administrative staff and managers have been combined to as white-collar workers. The analysis was conducted using IBM SPSS v24, and the employed statistical methods were: T-tests, correlation- exploratory factor- and multiple regression analyses.

Table 1: respondents

	Frequency	Percent
Operators	58	37.9
Installation technicians	11	7.2
Administration	56	36.6
Managers	28	18.3
Total	153	100.0

Variables

The questionnaire included a total of 16 questions, of which 13 are used in this paper. One items concerned work positions (table 1), nine questions concerned job resources

and three work engagement. All items for job resources and two items for work engagement uses a 7-point Likert, from strongly disagree to strongly agree One work engagement questions asked the respondent to estimate on how engaged he or she felt at work, on a scale from 0 to 7. The questions and the responses are further described in table 2.

Table 2: Summary of items

		N	Scale	Mean	S.D.
Job resources - goals	I am aware of- and understands company goals and visions	153	1-7	5.18	1.50
	I understand how my work contributes to company results	153	1-7	5.88	1.29
Job resources - reduce stress	My superior is supportive and appreciates my work	153	1-7	5.22	1.76
	The dialogue with-. and information from my superior is good	153	1-7	5.07	1.78
	I feel there is good work environment and I feel that my thoughts and ideas are taken seriously	153	1-7	4.71	1.86
	I get feedback and praise from collegues and superiors when I do something well	153	1-7	4.75	1.70
Job resources - stimulate personal growth	I feel I have opportunities for skill development at the company	153	1-7	4.49	1.88
	I feel I have career opportunities at the company	153	1-7	4.20	1.91
	In this company, all employees are given the same opportunities and are treated fairly	153	1-7	4.26	1.87
Engage-ment	The company is a motivating and stimulating work place	153	1-7	5.16	1.60
	My work tasks feels meaningful and I feel that I am meaningful at the company	153	1-7	5.44	1.64
	On a scale from 0-7, how engaged do I feel at work?	153	0-7	5.27	1.59

Dimension reduction

The number of variables for job resources and personal resources used for the regression (table 6) analysis are reduced using exploratory factor analysis (least squares). This analysis is done separately for the two sets of items. In both cases all items load onto a single variable, with high factor loadings and Cronbach alpha (tables 3 and 4).

Table 3: Exploratory factor analysis of job resources

	Loading
Management support	.851
Goals and visions	.567
Understands contribution	.607
Dialogue with superiors	.776
Work environment	.878
Feedback	.767
Skills opportunitues	.717
Career opportunities	.766
Equality	.687

Total variance explained=59.6 %, Cronbach alpha=0.91

Table 4: Exploratory factor analysis of work engagement

	Loading
Motivating work place	.856
Meaningful work	.850
Feel engaged	.895

Total variance explained=83%, Cronbach alpha=0.90

Results

The first research hypothesis concerns if blue-collar workers experience lower work engagement than white-collar workers. The hypothesis is tested by comparing the mean value of three items of work engagement (table 5), combined with an independent samples t-test. The results show that all three items show significantly lower values for blue-collar workers, thus strongly supporting hypothesis H1.

The second hypotheses proposes that blue-collar workers experience that they have less job resources than white-collar workers. This hypothesis is also tested using comparing mean values, coupled with a t test. The test t-test shows that out of 9 items, 7 items show significantly lower values for blue-collar workers. The items where the difference between the work positions was not significant is awareness of targets and vision and awareness of contribution to results. Hypothesis 2 is thus mainly supported.

Table 5: The difference between blue- and white-collar workers

Variable	Blue-collar	White-collar	Sig.[1]
Job 2: Management appreciation	4.75	5.60	0.00
Job 3: Awareness of targets and vision	5.00	5.32	0.19
Job 4: Awareness of contribution to results	5.70	6.04	0.10
Job 5: Communication with closets manager	**4.46**	5.57	0.00
Job 6: Creative work environment	**4.12**	5.20	0.00
Job 6: Feedback and encouragement	4.25	5.15	0.00
Job 7: Opportunity for education/training	3.99	4.90	0.00
Job 8:Career opportunities	**3.55**	4.74	0.00
Job 9: Equal opportunities	3.81	4.63	0.00
Eng 1: Highly motivating workplace	4.70	5.54	0.00
Eng 2 Meaningfulness	4.90	5.88	0.00
Engagement 3	5.81	6.64	0.00

[1]T test (2-tailed significance). Bold text highlights where the difference is over 1.

The third hypothesis concern a positive link between job resources and work engagement. This hypothesis is tested by first reducing the numbers of items using exploratory factor analysis (resulting in one factor for job resources and one factor for work engagement, see tables 3 and 4), and then using a regression analysis of the components. The results

(model 2, table 6) show that job resources are indeed extremely strongly (beta = 0.78) related to work engagement, providing strong support for hypothesis 3.

The fourth hypothesis is that job resources mediates the link between work position (blur- or white-collar) and work engagement. This hypothesis is tested in three steps (figure 6). In the first model, only work position (blue-collar = 1) is included, in the second model, only job resources are included, and finally in the third model both independent variables are included. Models 1 and 2 shows that both independent variables are significantly associated with work engagement. In model three, when both "blue-collar" and job resources are included. The results show that the effect of "blue-collar" completely disappears in model 3, implying a complete moderation by job resources.

Table 6: The impact of work position and job resources on work engagement (regression)

	Model 1		**Model 2**		**Model 3**	
Variables:	Std Beta	Sign	Std Beta	Sign	Std Beta	Sign
Blue -collar	-30	.00			-0.06	.27
Job resources			.78	0.00	.77	.00
Model statistics:						
R^2	0.09		.62		.63	
Adj R^2	0.08		.62		.62	
F value	14.6**		248.1**		124.8**	

*p<.05, **p<.01. Dependent: Work engagement

The explanatory power of model 1 is not very high, although the F value is significant at $p<0.01$. The explanatory power of model two and three, are on the other hand, very high (R^2 is above .5), and the F value is at a high and significant level, which reflects the extremely strong association between job resources and work engagement. The residuals have been checked and they do indeed behave randomly. No collinearity problems was detected, with VIF values at of 1.1.

The third objective (no hypothesis was formulated) concerned which perceived job- or personal resources are likely to increase perceived work engagement most. The question is answered with a combination of means testing (table 5) and correlation analysis (table 7). The logic is that those resources where blue-collar workers score significantly lower than white-collar workers, **and** where there is strong correlation with work engagement, provide highest potential for improvement.

The results show that all job resources are closely associated with the engagement with their work by the respondent. For both blue-collar and white-collar workers, a creative work environment and career opportunities are most highly correlated with work engagement. There are also remarkable differences between white-collar and blue-collar workers. Whereas communication with closest manager and management appreciation are extremely strongly correlated with work motivation for white-collar worker, the correlation is much less strong for blue-collar workers.

Table 7: The most effective job resources (correlations)

Variable	Blue-collar	White-collar	All
Job 2: Management appreciation	**.43****	**.73****	.60**
Job 3: Awareness of targets and vision	.56**	.61**	.59**
Job 4: Awareness of contribution to results	.54**	.73**	.63**
Job 5: Communication with closets manager	**.37****	**.73****	.58**
Job 6: Creative work environment	.68**	.72**	.72**
Job 6: Feedback and encouragement	.53**	.70**	.63**
Job 7: Opportunity for education/training	.50**	.62**	.59**
Job 8:Career opportunities	.67**	.62**	.68**
Job 9: Equal opportunities	.51**	.57**	.57**

*p<0.01, **p<.01, bold text indicates where the correlation differs by more than .30.

Referring to table 5, for both perceived career opportunities and creative work environment, the difference between blue-collar workers and white-collar workers is largest. In this two areas there is also an extremely strong correlation to work engagement (table 7). These two areas thus provide the most effective ways to improve the work engagement of blue-collar workers. In another area, communication with closest manager, there is also a large difference between the two types of employees, but the correlation with work engagement is relatively weaker for blue-collar employees.

Discussion

It is important that employees feel engaged at work, as it usually leads to higher individual and organisational performance (Schaufeli et al, 2006; Whittington and Galpin). Sadly, not all employees feel similarly engaged, as this study has confirmed (see also Kanten and Sadullah, 2012), by showing that blue-collar workers feel significantly less engaged than white-collar workers. Blue-collar workers also perceive that they have fewer job resources, despite the fact that they work in the same company, and in the same location. The reason for this discrepancy is that either blue-collar workers do not actually have access to the same job resources, or that they only perceive these resources more negatively than white-collar workers.

The effects of work position on work engagement is weaker than the effects of perceived job resources. Job resources are extremely highly correlated with work engagement, in line with Mauno et al, 2007 and Xanthopoulou et al (2009), whereas the impact of work position is more modest. When the impact of both work position *and* job resources are analysed simultaneaouly, the effects of work position disappears. This can is interpreted as job resources having a complete mediating effect on work engagement. This implies that in order to raise work engagement among blue-collar workers, it is important that they feel that they have access to sufficient job resources.

The final objective of this paper was to analyse which perceived job resources are likely to increase the perceived work engagement most. Combing two types analysis, means testing and correlation, showed that career opportunities and a creative work environment provide the best potential for improving blue-collar worker's work

engagement. The results are partly in line with Herzberg (2003), who found that factors leading to work engagement are such as a meaningful job. Herzberg (2003) also found that work recognition (in this paper feedback and encouragement) is a leading cause of work motivation. We found that this is more accurate for white-collar employees than blue-collar employees, which underscores the importance of investigating the types of employees separately or at least be aware of the differences.

Conclusions

The purpose of this paper was to test whether the level of available job resources differ between white and blue-collar workers and what the effects are on work engagement. Although work engagement clearly differs between blue- and white-collar worker, it appears that the work position itself is not the prime driver. Instead, the results of this paper indicate that it is the perceived difference in job resources between blue- and white-collar worker that is the main reason for why blue-collar workers are less engaged than white-collar workers. In addition, this paper identifies two areas where there is a particular potential for improvement; areas that contribute significantly to work engagement and areas where blue-collar workers are lagging behind white-collar workers. These areas are career opportunities and creative work environment. It thus seems wise for firms seeking to engage their blue-collar workers to a higher extent to focus on creating workplaces that are creative without the needs for constant, relatively ineffective, communication and appreciation by management.

The findings will contribute to an understanding of how the level of work engagement can be raised in, primarily blue-collar, workers. This issue is highly relevant for managers that seek to improve performance, as previous studies have found that work engagement contributes both to individual- (see Schaufeli et al, 2006) and overall organisational performance (as discussed by Whittington and Galpin, 2010).

The main contribution of this paper is to show how the different perceptions impact work engagement and also to pinpoint which areas are most fruitful for increasing work engagement among blue-collar workers. After identifying which job resources are lacking in blue-collar worker, and identifying the resources' effect on work engagement, future studies could focus on how these resources can be raised and thus improve work engagement of blue-collar workers

A limitation of this paper is that it based on a single case. Future studies could verify the findings of this paper by investigating other types of companies or organisations. Another limitations concerns how the two concepts, job resources and work engagement, were measured. There are several overlapping concepts, such as work motivation and quality of work, which may also be used as a basis for similar studies. How the concepts and defined, and even more importantly how they are operationalised, may have an effect on results. Another limitations is the factors that are not as important (e.g. relationship with managers) in this survey may lead dissatisfaction (as proposed by Herzberg, 2003), which is not necessarily the opposite of satisfaction, as measured in this survey.

References

Ahmad, S. F., Gilkar, N. A., & Darzi, J. A. (2008). *Organisational Behaviours*. New Delhi: Atlantic Publishers & Distributors Pvt Ltd.

Aurell, C. G. (1979). Perception: A model comprising two modes of consciousness. *Perceptual and Motor Skills*, *49*, 431–444.

Bakker, A. B., Demerouti, E., & Burke, R. (2009). Workaholism and relationship quality: A spillover-crossover perspective. *Journal of Occupational Health Psychology*, *14*(1), 23.

Bakker, A.B, Schaufeli, W.B, Leiter, M.P and Taris T.W (2008), "Work engagement: An emerging concept in occupational health psychology", *Work & Stress*, Vol. 22, No. 3, pp 187-200

Gagné, M., & Deci, E. L. (2005). Self-determination theory and work motivation. *Journal of Organizational behavior*, *26*(4), 331-362.

Hahn, T., & Scheermesser, M. (2006). Approaches to Corporate Sustainability among German Companies. *Corporate Social Responsibility and Environmental Management*, *13*, 150–165. http://doi.org/10.1002/cs

Hobfoll, S.E., Johnson, R.J., Ennis, N. & Jackson, A.P. (2003). Resource loss, resource gain, and emotional outcomes among inner city women. Journal of Personality and Social Psychology, 84, 632_643.

Kanten, S., & Sadullah, O. (2012). An empirical research on relationship quality of work life and work engagement. *Procedia-Social and Behavioral Sciences*, *62*, 360-366.

Luthans, F. (2002). *Organizational Behavior*. New York: McGraw-Hill

Mauno, S., Kinnunen, U., & Ruokolainen, M. (2007). Job demands and resources as antecedents of work engagement: A longitudinal study. *Journal of vocational behavior*, *70*(1), 149-171.

Schaufeli, W., & Salanova, M. (2007). Work engagement. *Managing social and ethical issues in organizations*, *135*, 177.

Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. *Journal of organizational Behavior*, *25*(3), 293-315.

Schaufeli, W. B., Bakker, A. B., & Salanova, M. (2006). The measurement of work engagement with a short questionnaire: A cross-national study. *Educational and psychological measurement*, *66*(4), 701-716.

Whittington, J. L. & Galpin, T. J., 2010. The engagement factor: building a high-commitment organization in a low-commitment world. *Journal of Business Strategy,* 31(5), pp. 14-24.

Xanthopoulou, D., Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2009). Reciprocal relationships between job resources, personal resources, and work engagement. *Journal of Vocational behavior*, *74*(3), 235-244.