

IDENTIFYING THE DISSATISFIERS IN KNOWLEDGE WORK

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Abstract

This study extends earlier research by providing new understanding about job satisfaction in knowledge work. The contribution this paper provides is a set of dissatisfiers related to perceived job satisfaction. The study proposes decreasing in the elements related to dissatisfaction compared to recent management literature. The results of this study can be considered valuable from a managerial point of view. Improving the identified dissatisfiers may yield improvements in the perceived job satisfaction and finally in productivity. The results can also be utilized as guidelines when developing mobile work order system. For example, comparative studies in several teams and comparison between two different firms operating in similar business are interesting avenues for further research. In addition, the findings could be attached to recent discussions on job satisfaction in psychological theories.

Keywords: ICT, job satisfaction, knowledge work, self-organizing teams, mobile technology.

Introduction

Development of especially ICT technologies has enabled a change towards leaner and more flexible organizations. In addition to white-collar workers, also blue-collar workers have nowadays a mobile access to most of information in a company's ERP systems, including e.g. work orders and work loadings. Many firms are currently considering or already piloting new possibilities to carry out their operations with self-managing autonomic teams in spite of traditionally supervised teams. It has been proposed that this type of transition towards more autonomic job description will increase perceived job satisfaction. For example, participation in decision-making influences directly job satisfaction (Scott-Ladd & Marshall, 2005). Improved job satisfaction in turn may affect also firm-level productivity positively (Adam et al., 2005; Kujansivu & Oksanen, 2010; Westlund & Löthgren, 2000). Concurrently with these internal changes, the business environment is changing. Technological systems are becoming increasingly distributed, as technology becomes smarter and more independently operating (cf. Chung & Hossain, 2010). Further, the proximity of end customer (e.g. broadband, energy meters) relates to this development towards more distributed technological future (Jacobs, 2010). Therefore, maintenance and support operations are going to be more complex and situate nearer the end-customer that requires ever higher level of competences from maintenance workers (Bosch-Sijtsema et al., 2009). Thus, many maintenance workers' duties include features of knowledge work (Drucker, 1999; Ramirez & Nembhard, 2004). What are not so well-known are how employees perceive these changing working conditions and what kind of relations the working conditions may have with job satisfaction. By identifying the weakest points (hereafter, dissatisfiers) from the point of view of job satisfaction, the development efforts could be targeted more effectively and eventually, productivity improvements could be achieved. In this paper, we have two objectives: First, we provide new knowledge on the factors of working conditions affecting job satisfaction. Second, we report on our practical experiences in identifying the dissatisfiers of job satisfaction in knowledge work.

Theoretical Background

A simple way to distil the various needs and expectations at work can be categorized into extrinsic and intrinsic motivation. Extrinsic motivation relates to 'tangible' rewards such as salary and fringe benefits, security, promotion etc. Such tangible rewards are often determined at organizational level and may be largely outside the control of individual manager. Intrinsic motivation relates to 'psychological' rewards such as opportunity to use one's ability, a sense of challenge and achievement, receiving appreciation, positive recognition and being treated in a caring and considerate manner. These rewards can usually be determined by the actions and behaviour of individual managers. (Mullins, 2010, p. 254)

There are many competing theories attempting to explain the nature of motivation. Most of theories are able to explain at least partially the behaviour of certain people of certain times. One group of motivational theories are content theories (Maslow's hierarchy of needs model; Alderfer's modified need hierarchy model; McClelland's achievement motivation theory; and Herzber's two-factor theory) (Mullins, 2010). The theoretical basis of this study is grounded on the Herzberg's (1968; 2003) two-factor theory of motivation, which separated job

variables into two groups: hygiene factors and motivators. The following Figure 1 shows the principle of Herzberg's model.

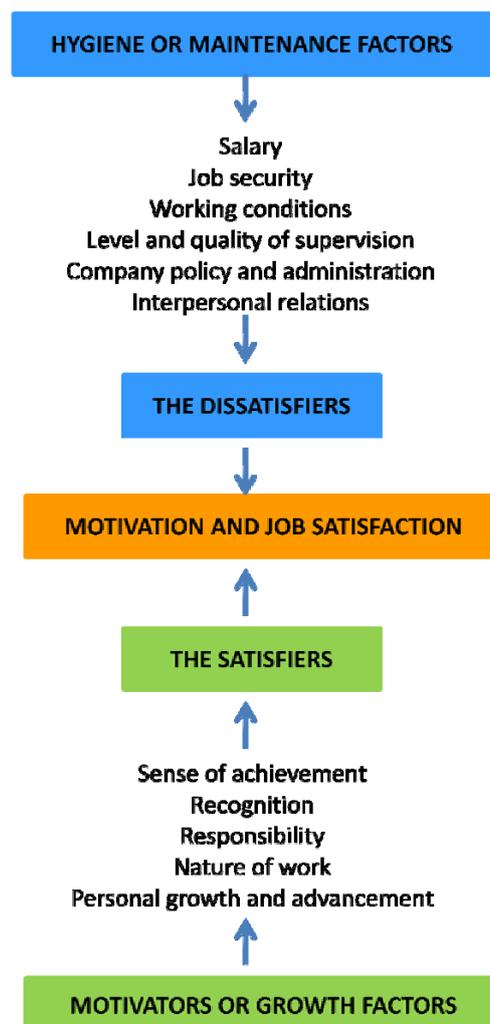


Figure 1. Representation of the Herzberg's two-factor theory (modified from: Mullins, 2010)

In Herzberg's original study he found that there were two different sets of factors affecting job satisfaction. It was not only the job content but also the job context which has a significant impact upon their job satisfaction. The hygiene-factors are those which, if absent, cause dissatisfaction. The other set are those factors that, if present, motivate the individual to better performance. These factors are related to job content of the work itself. It is important to understand that this model does say that the opposite of dissatisfaction is not satisfaction but, simply, no dissatisfaction. Thus these two sets of motivating factors are somewhat orthogonal, not in a continuum.

In this study, the focus is on the hygiene factors, more specifically on working conditions. This focus is due to our case context in which the company attempts to implement new type of working and wants to remove factors causing dissatisfaction. A lot of research has been carried out on working conditions and it has been classified in many ways in the literature.

For example, it can be characterized as physical (e.g. noise, workload) and mental conditions (e.g. work arrangements, psychosocial strain) relating to the work environment (see e.g. Lallukka, 2008) or distinguished into three different elements, namely psychological demands, decision latitude and job-security (Plaisier et al., 2007). In this study, working conditions is related only to the physical conditions. Many studies discuss the measurement and development of working on “once a year basis”. Instead, we approach the phenomenon in this study at a task level as a part of daily work.

Data, Measures and Methods

Data

We employed a single case company setting to study the factors of working conditions. The case company operates in maintenance work, taking care of technological systems and products that may locate either in business or consumer premises. We used questionnaire as a data gathering method. In order to minimize the effects of different working cultures and supervising systems, we conducted a questionnaire in one team which operates in one city. As the case company has strong motivation to develop its operations, we designed the measurement tool in close collaboration with the case company and implemented also questions responding to their practical needs.

A survey was conducted by researchers in collaboration with the case company in September 2010. The case company organized the survey. In practice, after each work task, a questionnaire was filled. At this time it was considered practical to use paper instead of, e.g., internet because we wanted that participating in the survey would not require a lot of extra resources. Filled questionnaires were sent to the researchers.

The survey was carried out at the level of individual work tasks. In total 217 completed questionnaires are included in this study. The respondents represent one team which operates in one city. The tasks reported represent different type of work tasks. In addition, switching ends and the number of intermediate switchboards vary. The background information of the tasks included in the study is presented in Table 1.

Table 1. Background information of the tasks

		<i>n</i>	%
Task type	Consumer xDSL-installation	123	56.7
	Company xDSL-installation	2	0.9
	Phone/ISDN	7	3.2
	Service product	2	0.9
	Other	76	35
	Missing	7	3.2
Switching ends	Both ends connections	96	44.2
	Only central office connection	55	25.3
	Only customer end connection	45	20.7
	Missing	21	9.7
Number of intermediate switchboards	0	64	29.5
	1	49	22.6
	2	18	8.3
	3	6	2.8
	4	1	0.5
	15	1	0.5
	Missing	78	37.9

Measures

In this study working environment is measured in terms of nine factors tentative affecting job satisfaction. Each of the nine factors is assessed using a seven-point scale (1–7), in which one refers to negative and seven refers to positive. The range varies according to a measure. The questions (originally in Finnish) and the response alternatives are provided in the following Table 2.

Table 2. Measures of working environment

<i>Measured factor</i>	<i>Question</i>	<i>Range (1–7)</i>
Signal strength of network	Signal strength of network in connection room	No signal – Full bars
Communication with the operator	How was communication with the operator?	Very poor – Very good
Communication with the end customer	How was communication with the end-customer?	Very poor – Very good
Work order	Was the work order up-to-date including all relevant information?	Very poor – Very good
Finding the destination	How did you succeed in finding the destination?	Very poor – Very good
Finding a parking place	How did you succeed in finding a parking place?	Very poor – Very good
Access to the destination	How did you succeed in accessing the destination?	Very poor – Very good
Making of an installation	How did you succeed in making of an installation?	Very poor – Very good
Equipments	Did you have all required equipments available?	Very poor – Very good

Job satisfaction is measured by one question: “*How did you perceived working as a whole?*” Answers were provided by using a seven point scale from extremely uncomfortable to extremely comfortable.

Statistical methods

First, the data is examined by correlation analysis. Spearman's correlation coefficients are computed between measures related to working environment (in total nine measures) and job satisfaction measure. Spearman's correlation is a non-parametric test that is used to measure the degree of association between the two variables. It does not assume any assumptions about the distribution. Spearman's correlations give us the first insight into the relationships between tentative factors of working conditions and job satisfaction.

To examine more precisely if there is association between the different factors of working conditions and job satisfaction the authors applied Pearson's chi-square test. Actually, it is used to test the hypothesis of no association of the two variables examined. The test is appropriate in situations in which both variables are at least nominal-scaled.

After having identified the factors (of working conditions) associated with job satisfaction the current status of these factors is examined. The data is explored by using the distributions of the variables. It is assumed that achieving many answers scaled 1–5 would indicate some problems related to the factor under examination.

Findings

Factors of working conditions affecting job satisfaction

The results of correlation analysis and chi-square tests are presented in Table 3. Before carrying out chi-square tests, the variables were categorized in order to fill the requirements of the test. Signal strength of network was grouped into three classes, where responses "1" and "2" formed their own classes and responses "3–7" were combined into third class. Other eight factors of working environment were categorized into two groups as follows: responses "1–5" into first group and responses "6–7" into second group. Correspondingly the job satisfaction variable was regrouped similarly.

Table 3. Dependency of various factors with the job satisfaction measure

<i>Factor of working conditions</i>	<i>n</i>	<i>Spearman's correlation coefficient</i>	<i>p value</i>	<i>χ² value</i>	<i>p value</i>
Signal strength of network	209	0.037	0.591	7.119*	0.028
Communication with the operator	78	0.222	0.050	1.131	0.288
Communication with the end customer	132	0.190*	0.029	4.888*	0.027
Work order	206	0.330**	0.000	18.888**	0.000
Finding the destination	208	0.209**	0.003	19.654**	0.000
Finding a parking place	204	0.074	0.292	2.258	0.133
Access to the destination	190	0.189**	0.009	12.479**	0.000
Making of an installation	186	0.277**	0.002	11.459**	0.001
Equipments	209	0.134	0.052	4.066*	0.044

**Statistically significant at the level of 0.01; *Statistically significant at the level of 0.05

When 1 % risk level is assumed, correlation analysis show that there is a positive correlation between four variables and the job satisfaction variable. Those were 1) work order, 2) access to the destination, 3) finding the destination, and 4) making of an installation. In other words

there is a statistically significant dependency between these variables and job satisfaction. In practice, in case the above mentioned factors were perceived low, job satisfaction got low values also. Correspondingly, when the previous factors were assessed high job satisfaction was perceived high. However, the correlations observed here are quite weak. The strongest correlation is observed between work order and job satisfaction.

Furthermore chi-square tests give similar results indicating that there is a statistically significant dependency between four variables of working conditions and job satisfaction. In practice, there is a significant difference in job satisfaction between the different groups of factors (of working conditions).

As a summary, correlation analyses and chi-square tests provide evidence that four of the nine studied factors are associated with job satisfaction. It implies that if a worker considers that there are some problems related to these factors, he or she probably considers job satisfaction quite low as well.

Dissatisfiers in job satisfaction

The factors of working environment associated with job satisfaction were identified above. Further examination showed that the perceived state of these factors varies. Figure 2 shows the distributions of responses regarding each factor.

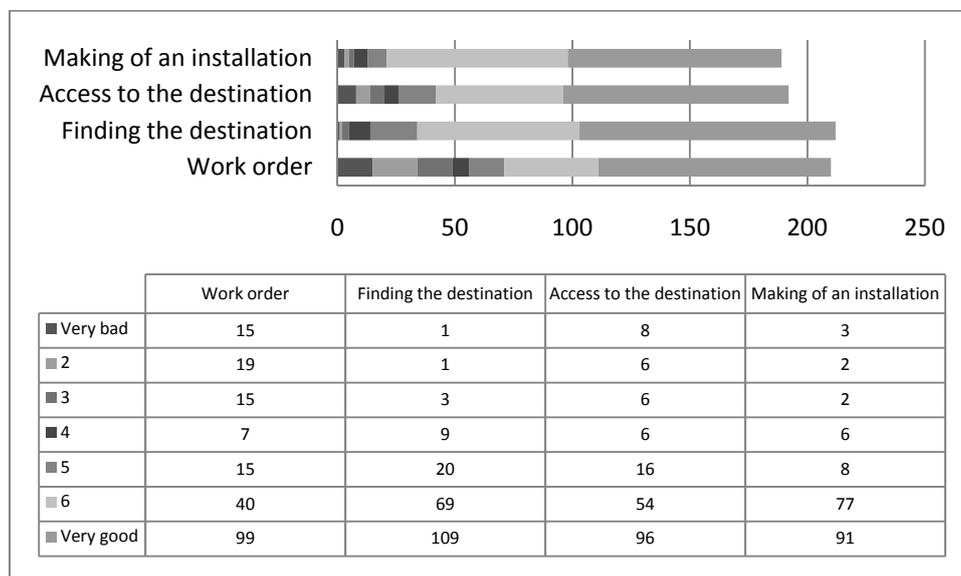


Figure 2. Distributions of the responses of the four factors studied

We suggest pay attention to the left hand side of the distributions. According to the results, 34 % of work orders were considered more or less incomplete (responses 1–5). Furthermore, 22 % of work tasks included some problems related to access to the destination; 16 % had problems related to finding the destination; and 11 % had problems related to making of an installation. It can be stated that the biggest dissatisfier in job satisfaction in this particular knowledge work were incomplete work orders. Other clear source of dissatisfaction is challenges related to access to the destination. Consequently, eliminating or reducing these

problems should yield to better perceived job satisfaction. For example, by developing work orders (e.g. structure, technique etc.) could lead to more satisfied knowledge workers.

Conclusions and Discussion

We found out that four out of nine tentative factors of working conditions are related to job satisfaction. Those were 1) work order, 2) access to the destination, 3) finding the destination, and 4) making of an installation. The dependency was statistically significant at the level of 0.1 %. Further examination showed that the perceived state of these factors varies. According to the results 34 % of work orders were more or less incomplete; 22 % of work tasks included some problems related to access to the destination; 16 % had problems related to finding the destination; and 11 % had problems related to making of an installation.

Our study extends earlier research by providing new understanding about job satisfaction in knowledge work. The contribution this paper provides is a set of dissatisfiers related to perceived job satisfaction. Our study proposes decreasing the elements related to dissatisfaction compared to recent management literature. In further research, our findings could be attached to recent discussions on job satisfaction in psychological theories. The results of this research may be considered valuable also from a managerial point of view. Practically, improving the identified dissatisfiers may yield improvements in the perceived job satisfaction and finally in productivity of the firm. The results can also be utilized as guidelines when developing mobile work order system. This study confirms the beliefs to study further the four factors identified. For example, comparative studies in several teams and comparison between two different firms operating in similar business are interesting avenues for further research. From the methodological point of view, the results of this study need to be critically interpreted. The questionnaire used was developed to fit in the context of a specific task type. In future studies it could be applied in similar context to test the usability of data gathering method. In addition, other statistical analysis could be carried out to analyze the data in order to understand the phenomenon more in depth.

Finally, this study strengthens our assumptions on that the success of knowledge work is a result of various different issues. Thus, managers need to be aware of many challenges in knowledge work. For example, dissatisfiers of working conditions (studied in this paper) should be better designed to support the daily work. On the other hand, from a wider perspective, rewarding policies and feedback practices has been recognized as challenges of knowledge work in productivity improvement (Kujansivu & Oksanen, 2010). Petronio and Colacino (2008) worked to find out the motivation strategies for knowledge workers and also found the inadequate reward systems as most important development targets. Since most of work nowadays includes at least some features of knowledge work, we suggest managers to consider the development of their business from a wide perspective by paying attention to various research fields, including technology management and knowledge management.

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