SUPERVISOR AND CO-WORKER FEEDBACK ENVIRONMENT AND BLUE-COLLAR EMPLOYEE ENGAGEMENT

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ABSTRACT

The aim of the research is to study the relationships between feedback and employee engagement among manufacturing workers. There has been little research on the topic involving low-skilled or blue-collared employees. The aim of the study is to identify what are relationships between the feedback provided by one's supervisor and their co-workers and the employee engagement in manufacturing companies. Three hypotheses were tested. First, there is positive correlation between high scores of supervisor feedback environment and co-worker feedback environment and employee engagement. Second – there is negative relationship between the age of workers and their engagement; the third hypothesis – there is positive relationship between the blue-collar employees' tenure and their work engagement. The study involved 495 respondents, blue-collar workers in manufacturing companies. The average age of the respondents was 42 years (range 18 to 75 years), and their work experience ranges from 0 to 10+ years.

Questionnaire in Latvian and Russian were prepared for the study. Instruments used– Feedback Environment Scale (Steelman & Levy, 2004) was adapted and Utrecht Work Engagement Scale (UWES-9, Schaufeli & Bakker, 2003). The results confirm findings of previous studies – high indicators in feedback environment predict high level of employee engagement. Supervisor feedback has higher level of influence than the one provided by co-workers. The most important factors of feedback provided by one's supervisor that affect the engagement are Feedback quality and Favorable feedback. The important factors of co-worker feedback are the Feedback delivery and Favorable feedback. The effect of age and tenure on engagement was not confirmed.

Keywords: engagement, co-workers feedback, feedback environment, supervisor feedback, workers

Introduction

Demand for blue-collar employees in manufacturing is on the rise. Employee replacement is becoming more expensive as production processes become more complicated. Accordingly, employee engagement has become

an important criterion on which to evaluate managers performance. Similar criterion for management has become quality of feedback in everyday communication. This research study the impact of feedback on worker engagement exploring whether the feedback provided by the supervisor has a different impact on employee engagement compared with feedback provided by co-workers. Given that workers represent a wide range of age groups, the results are analyzed taking into account demographic variables – age, tenure – exploring the relationship between the feedback environment of supervisors and co-workers and the employee engagement in their work.

Feedback

The quality of feedback is a key part of any development process and learning of new skills. Learning from experienced colleagues and exchanging information with them is an essential part of everyday life. But one should take into consideration the relatively lower level of education among workers in general. Consequently, they have less trained learning skills (personal learning barriers), limited expression capacity (less rich language) and generally a more dismissive attitude towards formal learning (Decius, Schaper & Seifert, 2021). In Latvia, there is also a growing number of guest workers from countries with Russian language skill, and this facilitate the daily use of two languages. Some of the workers do not speak Latvian, but some poorly speak Russian, which means that supervisors should often communicate with their team in two languages in a limited period of time due to active work flow whilst being clear, concise and short. According to the interviews with HR (human resource) management, workers mostly learn and grow in their workplace, accumulating experience and receiving feedback from several parties – supervisor, mentor and co-workers. Various studies assume that the amount of non-formal training in the company reaches between 70% (Cseh, Watkins & Marsick, 2000) and 90% (Flynn et al., 2006; Tannenbaum, 1997). Informal learning takes place by raising questions, observing processes, practicing and receiving feedback (Sambrook, 2005). Especially in manufacturing companies where formal training is not every day routine, employees' own desire to learn and social support they receive is particularly important (Decius et al., 2021). It should be noted that all people are in a social exchange relationship and transfer information using the principle of personal pleasure or mutual benefit (Cropanzano et al., 2005). Feedback skills are essential because it determines the future behavior in a company (Caresoli et al., 2017). All employees in the company are in relationships with executives, colleagues and subordinates. This relationship contributes to the exchange of information and the transfer of knowledge, which, in turn, is driven by personal interest and the supportive or non-supportive environment of the company for the provision and receipt of feedback.

Feedback environment

The concept of a feedback environment has been evolving gradually, and researchers say it is still evolving. Contextual effects were identified as a confounding factor that should either be ignored or explained. The most common issues identified by subordinates that their managers should change on their performance appraisal are: managers need to be trained on how to provide negative feedback and make it constructive; managers do not explain the performance appraisal process and managers are not rewarded for subordinate development (London, 1997). Researchers (Steelman & Levy, 2004) developed a feedback environment scale and defined the construct. Within the framework of this study, the *Feedback environment scale* was adapted, which examines the feedback in seven dimensions – credibility to the feedback provider; feedback quality; feedback delivery; favorable and unfavorable feedback; the source availability and feedback seeking.

High-quality feedback is consistent over time, specific, and considered more useful than poor-quality feedback, which varies depending on the provider's mood, his or her liking for the feedback as such, and observational capabilities (London, 1997). Studies have repeatedly emphasized that regular feedback is likely to change employee behavior (Pulakos, Hanson, Arad & Moye, 2015). Given the informal nature of day-to-day feedback, a feedback environment can overstep the challenges of rigorous, formal performance management and evaluation systems in which feedback is offered in annual appraisal once or twice a year. Studies have shown that a avorable feedback environment facilitate the desired results, including job satisfaction (Anseel & Lievens, 2007), a sense of belonging to a particular organization (Norris-Watts & Levy, 2004; Peng & Lin, 2016), and reduces intent to change company (Sparr & Sonnentag, 2008).

The authors (Whitaker et al., 2007) found that the search for feedback from colleagues decreased if the employee had to put too much effort receiving feedback one's is looking for. This is facilitated or reduced by the existing feedback environment in the company and the existing in company feedback culture. Referring to study (Whitaker et al., 2007) an employee-friendly feedback environment does not have much impact on employees who are highly oriented to learn new skills because they are feedback-oriented.

Engagement

Combining several definitions, engagement can be described as a positive psychological state of an employee, which can be observed in terms of purposeful work, inherent energy level, enthusiasm and commitment, which in turn contributes to the reaching company's goals and gaining success (Albrecht, 2010; Hallberg & Schaufeli, 2006). Complementing the

above, work engagement was proposed as a multidimensional construct of motivation (Rich Lepine & Crawford, 2010).

The engaged employees contribute to more positive outcomes for the organization as a whole, including customer satisfaction, lower employee turnover, higher productivity, and financial benefits (Harter, Schmidt & Hayes, 2002). Studies show that levels of involvement change over time (George, 2010).

It is important to look at the factors that facilitate engagement, as the work environment becomes more dynamic and employee training is more time-consuming, and the engaged employee is more valuable. Engagement is especially important among workers, as work processes are complex and working hours often extended due to the specifics of production work – work must be completed until a specific process is completed. Therefore, as the number of employees satisfied with the feedback increases, so does their intention to stay in the company and their engagement level (Decius, Schaper & Seifert, 2021).

The results of a another study (Eva, Meacham, Newman, Schwartz & Tham, 2019) show that organizations are encouraged to ensure that employees receive regular feedback from a number of sources, as such feedback may increase employee engagement and perceptions that the organization abides by its psychological contract. That encourages innovative behavior by employees. Referring to Luthans (Luthans, 2002), first, managers who support and develop team members can expect team members to show a higher level of engagement. Second, managers who are less able to develop their leadership skills can increase the engagement of their subordinates through task-oriented behaviors.

First hypothesis, there is a positive correlation between high scores in supervisors feedback environment and co-workers feedback environment and employee engagement.

This research found answers to two study questions that study more deep hypothesis 1 – which of the seven supervisor feedback factors have significant impact on the engagement of workers. Second – which of the seven co-worker feedback factors have significant impact on the engagement.

Tenure and age of employees

With reference to the aim of this study – the impact of feedback on employee engagement, the following aspects should be taken into account – labor market shortages, long service period and an aging workforce. Studies show evidence of positive relationship between age and employee engagement, such as job satisfaction (Birdi and Warr & Oswald, 1995) and job motivation (Ng & Feldman, 2010), suggesting age differences in

employees. Similarly, researchers (Christian et al., 2011) found a positive correlation between engagement and increase in engagement with age. The authors (Douglas & Roberts, 2020) found that employees over the age of 50 have also higher indicators in the factors of enthusiasm and dedication (according to the factors measured in the Utrecht work survey). A study conducted by Jelenko (Jelenko, 2020) in Slovenia, examining the impact of age differences on job satisfaction using the UWES-9 survey, found that, regardless of age group, intergenerational differences have a direct negative effect on job satisfaction and an indirect negative effects on employee engagement.

The usage of feedback, it has been concluded that the adjustment of one's actions tends to decrease with age (Ferdinand & Czernochowski, 2018). Ferdinand and Czernochowski also confirmed in the study that the processes that take place during learning, such as the evaluation of the feedback received, the use of the information received through the feedback, and the updating of knowledge, are influenced by age. The second hypothesis– there is a negative relationship between workers' age and their engagement.

Not only the increasing age of employees, but also the high turnover of employees is a issue in most of the workplaces today. Employee experience affects both engagement and the feedback environment (Welch & Jackson, 2007). It should be noted that a study (Ramos et al., 2016) concluded that workers with a bigger work tenure showed a lower level of engagement in work when quantitative requirements were high. Workers in manufacturing companies have high quantitative requirements.

The third hypothesis: There is a positive relationship between the employees' length of service in the company and their engagement.

Method

This was a correlative descriptive study designed to reveal the inter-relationships of the variables. The variables feedback environment and employees engagement were used (see Figure 1).
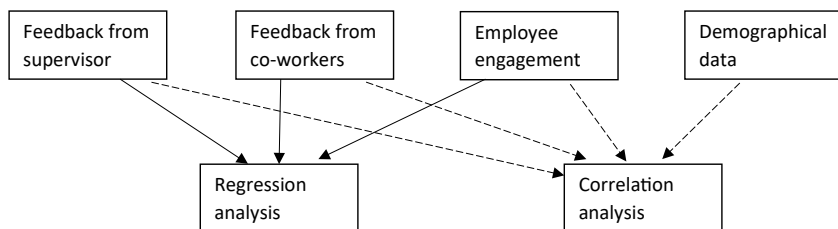

Figure 1. Research schema

Feedback environment consisting of direct feedback from one's supervisor and colleagues in seven subscales: credibility to the feedback provider; feedback quality; feedback delivery; favorable and unfavorable feedback; the source availability and feedback seeking. Engagement in work consists of scales of vigor, dedication and absorption (see Figure 2)
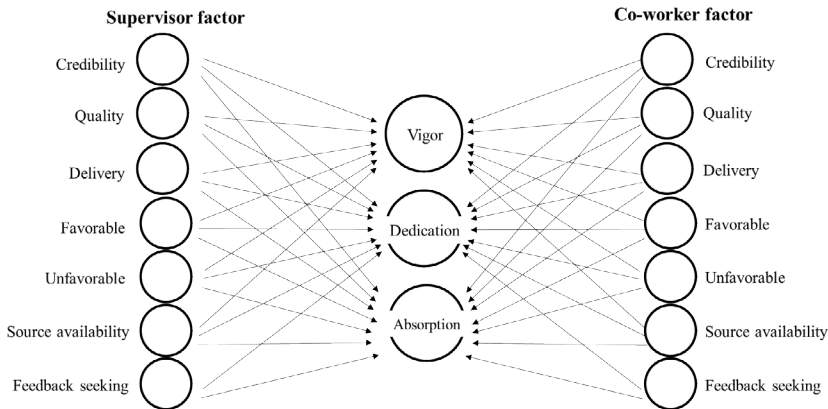

Figure 2. Research scheme for regression analysis

Sample

Respondents – blue collar workers of manufacturing companies aged 18 to 70. The following demographic data were collected: age of workers, language of communication, tenure. A total of 1,200 questionnaires was printed and distributed to the companies. Filling method – manual. 640 were returned, out of which 495 were of sufficient and good quality to be processed digitally and be used for further calculations and analysis. Demographics are shown in Table 1. The average age of the respondents was 42 years.

The questionnaires, together with the envelope, were handed over to the representatives of the personnel of the production companies, who further addressed the employees accordingly. The workers filled in the questionnaires voluntarily and anonymously. The completed questionnaires were returned in sealed envelopes. Questionnaires were entered and saved in one linked file and the data were processed in an aggregated way. The data, after being collected and entered into the Excel environment and processed in the SPSS program.

Table 1. Sample size. Sociodemographic data ($N = 495$)

Feature		frequency	%
Communication language	Latvian	401	81.0
	Russian	94	19.0
Tenure in company	0–12 month	95	19.2
	1–2 years	58	11.7
	3–5 years	129	26.1
	6–10 years	101	20.4
	10 and more years	112	22.6
Age	18–30	111	22.4
	31–50	262	52.9
	51–75	122	24.6

Data collection

Instruments used – Utrecht Work Engagement Scale (UWES, Schaufeli & Bakker, 2003) in Latvia has been adapted by Sanita Kronberga (Kronberga, 2013). The adaptation of the short version of the Utrecht Work Engagement Scale in Russian (UWES-9, Schaufeli & Bakker, 2003) is included in the Schaufeli & Bakker UWES Test Manual and was used in this study (Preliminary Manual [Version 1.1, Schaufeli & Bakker, December 2004]. The UWES-9 questionnaire consists of nine questions (short version). UWES-9 includes three subscales that reflect the basic dimensions of engagement. The variants of the answers are arranged on a Likert scale from 0 to 6. The Utrecht Work Engagement Scale instrument's internal coherence indicators in Latvia are $\alpha = 0.92$, the author's study's Cronbach's alpha is 0.94, which can be assessed as excellent.

Second tool was Feedback Environment Scale (FES) (Steelman, Levy, 2004). The FES was developed to provide a better understanding and diagnosis of feedback processes in organizations. The questionnaire consists of 32 questions evaluating the feedback provided by the line manager and 31 evaluating of the feedback provided by the colleagues. From 1 (disagree) to 7 (strongly agree). FES was adapted in Latvian and Russian within this study.

Results

Specific descriptive statistics were obtained using the UWES 9 and Feedback Environment Scale. The reliability of these surveys was determined by examining the internal coherence of the questions within each survey (Cronbach's alpha indicators), these indicators determine excellent internal coherence. Compared to the original questionnaire (Steelman & Levy, 2004) the scales correspond to a normal distribution. Also, the results of both aggregation and individual scales of involvement in work correspond to the normal distribution.

Pearson correlation calculations were used to determine the relationship between employees and socio-demographic indicators.

Following hypotheses were tested:
1) there is a positive relationship in age and involvement in work;
2) there is a negative relationship between age and involvement in work (see Table 2).

Table 2. Results of Pearson correlation coefficient calculations for employees and socio-demographic indicators ($N = 495$)

	Age	Tenure	Language	Engagement
Age	1			
Tenure	0.47**	1		
Language	0.01	–0.09	1	
Engagement	0.19**	–0.38	0.08	1

**$p < 0.01$ (backwards)

The calculations reject hypothesis that there is a positive relationship between age and engagement. In turn, the hypothesis – there is a negative relationship between age and engagement in work. Calculations with a high significance level ($p < 0.01$) indicate a direct relationship between the respondents' age group and the results of their involvement in work, but the closeness of this relationship is considered to be insignificant (0.19). Calculations show: the older the age, the greater the engagement of employees. But from a statistical point of view, the impact is not so great as to be significant. To find out whether there is a correlation between the feedback rates and the engagement rates, the combined effect of the total feedback from the supervisor (all 7 factors) and the combined effect of the total feedback from co-workers (all 7 factors) on involvement in work (all three factors together) (See table 4). Using Pearson's correlation coefficient calculations, it can be seen that both – the feedback provided by the supervisor and the feedback provided by co-workers have positive

correlation with engagement, while the feedback provided by the supervisor has a statistically greater effect.

Testing the hypothesis: There is a positive correlation between high scores in the feedback environment received from the supervisor and feedback environment received from co-workers and employee engagement. Pearson correlation coefficient calculations were used. The hypothesis was confirmed – the higher the indicators of the feedback environment provided by the direct supervisor and colleagues, the higher the respondent's involvement in the work (see Table 3).

Table 3. Results of Pearson correlation coefficient calculations for total indicators of Supervisors feedback, co-workers feedback and engagement total indicators ($N = 495$)

	Co-workers FB	Supervisor FB	Engagement
Co-worked feedback	1		
Supervisor feedback	0.71**	1	
Engagement	0.47**	0.54**	1

**$p < 0,01$ backwards

Regression analysis was performed to find out which feedback factors have significant impact on overall engagement rates. It shows that the involvement of workers in their work is significantly influenced by the quality of feedback provided by their direct manager and how favorable it is, as well as the way the feedback delivered by co-workers is given and how favorable it is (se Table 4).

Table 4. Results of multiple regression analysis for engagement as a dependent variable of the feedback environment provided by supervisors an co-workers ($N = 495$)

	Unstandardized coefficient		Standardized coefficient	t	p
	B	Standard deviation	ß		
FES					
Supervisors FB					
FB quality	0.37	0.11	0.18	3.28	0.00
Favorable FB	0.45	0.13	0.20	3.46	0.00
Co-workers FB					
FB delivery	0.31	0.13	0.14	2.34	0.02
Favorable FB	0.41	0.14	0.17	2.98	0.00

In the following calculations, using Pearson's correlation, it was clarified how these factors are influenced by the socio-demographic indicators of the respondents (see Table 5).

Table 5. Results of Pearson correlation coefficient calculations for total indicators of feedback environment factors and sociodemographic indicators ($N = 495$)

	Age	Tenure	Lan-guage	FB quality super-visor	Favora-ble FB super-visor	FB delivery co-work-ers	Favora-ble FB co-work-ers
Age	1						
Tenure	0.47**	1					
Communica-tion language	0.01	0.05	1				
FB quality supervisor	0.01	–0.14**	0.06	1			
Favorable FB supervisor	0.07	0.00	0.10*	0.69**	1		
FB delivery co-workers	0.03	-0.09	0.04	0.57**	0.55**	1	
Favorable FB co-workers	0.06	0.03	0.12*	0.49**	0.56**	0.70**	1

$**p < 0,01$ backwards

Analysis of the statistically significant factors for feedback in terms of tenure, age of respondents and language of communication shows that the longer the tenure, the less important the quality of feedback provided by the supervisor. The indicator is statistically significant but not taken into account.

The language of communication is important for the feedback factor "Favorable feedback" provided by the line supervisor and co-workers. Thus, it can be concluded that communication in one's mother tongue or in a language close to their mother tongue is easier to understand and perceive nuances.

Conclusions

The aim of the study was to find out what correlations exist between employee engagement and feedback provided by one's supervisor and co-workers, as well as identify the factors of feedback provided by both the supervisor and co-workers that have significant impact on employee engagement.

The first hypothesis was confirmed as there is a positive relationship between feedback and engagement. Using the Feedback Environment Scale, the results confirm findings of other studies discussed in the theoretical section. There are relatively few studies on the impact of co-worker feedback, and the work done in this study is complementary to co-worker feedback research. Using the UWES-9 and the factors characterizing the engagement (vigor, dedication and absorption) included in it, the results were obtained that resonate with the relationships confirmed in the previous researches. Organizations are encouraged to ensure that employees receive regular feedback from a variety of sources, as such feedback may facilitate employee engagement. It is also useful to use peer feedback to complement the lack of feedback from managers where necessary. Thus, to answer the research question "which of the factors of supervisor feedback influence the engagement at work most?", the results showed that the quality of feedback and favorable feedback have the greatest impact. The results are in line with previous research, which concludes that direct managerial feedback is also positively related to job satisfaction and a sense of belonging to the workplace. On the other hand, when answering the question of which of the seven factors of feedback provided by co-workers influence the involvement in the work, the following factors highlighted – the delivery of feedback and also favorable feedback. If employees feel that the company provides them with the feedback they need, they are satisfied with the team, and if the feedback they receive is satisfactory, the involvement rates increase.

The second hypothesis, the age of the employee is negatively related to involvement in work, was partially confirmed. Statistical indicators indicated that the correlation is insignificant (significance level appropriate, but the coefficient is low), although the relationship is opposite – the older the age, the higher the involvement. According to the previous studies, age has positive effect on engagement. But the results of this study can be influenced by various factors, so it would be necessary to further study the relationship between age and engagement and the total emotional resources of low-skilled workers. Group of respondents – low-skilled workers who, as they grow older and do not move to a higher-skilled job, have acquired skills for work and can easily apply these skills while working in similar jobs in different companies. The basic difference between white and blue collars should also be mentioned. White-collar workers are mainly satisfied with the content of their work, sense of accomplishment and level of appreciation. In turn, blue-collar workers are more motivated by salary, relationships with colleagues, working conditions and job security.

The third hypothesis – the employee's tenure is positively related to involvement in work – was not confirmed. From the pool of respondents, 22.6% were with the longest work experience (10 years and more).

The largest group (26.1%) represented 3–5 years of experience; according to the above-mentioned studies such employees have already developed skills to a certain level and many want to expand their responsibilities, but the developed skills do not prepare them for the desired responsibilities. There can be level of dissatisfaction because desires do not match opportunities.

Turning to the limitations of the study, the questionnaire was relatively long (72 questions in total) and, given the specifics of the respondents' work, the questionnaire may have been completed between workflows, while the length of the questionnaire exceeded the length of the break. The Utrecht job involvement survey was placed at the end of the questionnaire and the respondents were probably already tired of answering 63 questions, so they did not go deep enough into the nine questions assessing job involvement. In the future, the use of an abbreviated feedback environmental measurement scale should be considered. The abbreviated version consists of 22 items in supervisor's feedback environment assessments and 21 items on peer feedback environment measurements. In total, there would be 43 items instead of 63.

Theoretical significance of the research – in the future it would be worth reviewing the number of questions and feedback for the adaptation of the feedback environment scales to conduct a research between the performers of intellectual work (white collars). Thus obtaining comparable data with blue collar workers data. It should be noted that there is little research in Europe between the two groups and it would therefore be important to have an overview of the feedback from local companies. When considering additions to future research, it would be necessary to look in more detail at the feedback culture in the companies represented by the respondents. In this study, it is known that in one company the LEAN principle is in the work culture, in another company this was the first time that such a large-scale survey was offered to workers. This would also allow the results to be compared to the company's feedback culture. Importantly, with the development of the theory of the feedback environment construct, the researchers came to the conclusion that the feedback environment is closely related to the orientation to the feedback – in general, if the employee is interested in receiving the feedback less or more. The same applies for supervisors. Researching the orientation towards feedback would provide data that would be widely applicable to a particular company, showing the situation of orientation towards feedback of the department director and the employees of the department. The same should be said for a more detailed study of the feedback environment of supervisors and co-workers – if the company's shift and employee teams are constant, the results can be applied to a particular shift.

The practical significance of the study is that it is one of the few studies that addresses the low-skilled group of workers and provides important information on the factors influencing feedback. This leads to opportunities to develop and improve these important aspects of feedback, such as feedback quality from the supervisor. Also, receiving respectful feedback from co-workers (a factor with a significant impact – feedback delivery) shows that employees who receive and accept feedback from their colleagues are less dependent on their manager's feedback. They receive resources what they need to meet their job requirements from an additional source. As the feedback factor (favorable feedback) appeared in the feedback provided by both the line manager and colleagues, it is highlighted that recognition is important and have direct impact on engagement. This is in line with the principle of wellbeing and the concept of employee experience, which has been raised in recent years and includes all points of contact with the company experienced by the employee. Feedback is an integral part of wellbeing, just like an employee's experience that results in positive engagement. The results of this study show the characteristics in the social context that characterize low-skilled workers in companies today. The results of the research are practically applicable in the companies that participated in the study, as they illustrate the general trend among workers in manufacturing companies and allow to evaluate the feedback traditions, the way of providing and in-depth evaluation of the development of personnel management goals.

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