

Application of the Dimensions of the Learning Organisation Questionnaire in the IT Sector in the Czech Republic

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Abstract: The learning organization concept brings many advantages to the organizations (e. g. improving the performance or maintaining the competitiveness). Implementation of the learning organization concept in the Czech Republic has not been dealt with yet. This study deals with application of the DLOQ in small and medium-sized enterprises in the IT sector in the Czech Republic. Based on the results of the study it can be said that there has been a shift in applied human resource development models towards a learning organization. Of the 7 dimensions of the learning organization, the highest score has dimension 1 and the lowest score has dimension 4. If we compare the results by gender, there is no significant difference between men and women. A significant difference has been found in people who do not learn and those who devote more than one hour a month to learning.

Keywords: learning organization; DLOQ; small and medium enterprises; IT.

Introduction

In the learning organization model, learning and training are sources of future success. In his book *The Fifth Discipline*, Senge defines a learning organization as: „...an organization in which people constantly improve their abilities and achieve the results they truly desire, where they find support, new and dynamic models of thinking where collective thinking and inspiration are supported and where people are still learning how to learn together.“ [9] Kandola and Fullerton add to the definition of the learning organization factors such as a shared vision, culture, motivated workers, motivation to education, structure with learning opportunities, or the trust of managers in teamwork and its positive results [7]. Learning in the learning organization becomes an integral part of the whole work process; work and learning are interconnected in the process of continual improvement. The learning organization does not rely on learning as a by-product of routine work, but the learning is actively supported, facilitated, and rewarded. Interaction between individuals is then a key aspect of organizational learning. Employees in the learning organization strive to achieve their potential, share the vision of the target with team colleagues, and their personal goals are in line with the mission of the organization. These employees see their work as a whole or a system in which there are interdependent processes [6]. The implementation of the learning organization concept will allow organizations, among other things, greater flexibility, competitiveness, performance improvement, achievement of goals and longer existence than their competitors [3].

According to the Czech Statistical Office, the importance of small and medium-sized enterprises is rather high in the Czech Republic. These enterprises employ more than 70% of employees in the private sector. The Czech Statistical Office defines the small and medium enterprises by 250 employees. In detail, small and medium enterprises can be divided into

micro-enterprises with 1 to 9 employees, small enterprises with 10 to 49 employees and medium enterprises with 50-250 employees. We can also see the small enterprises divided into groups with 10 to 19 employees and with 20 to 49 employees. We can also see dividing of the medium enterprises into groups with 50 to 99 employees and with 100 to 249 employees. Enterprises that employ more than 250 people are called large enterprises. Every year, the number of small and medium enterprises changes due to newly created and newly extinct enterprises. The number of newly created enterprises is usually larger and the turnover is around 10% [12, 13]. When we compare information obtained in 2010 and 2015, we can say that the number of enterprises with 0 to 249 employees is constantly increasing (for example, in 2015 the number of companies was 5280 more than in 2014) [14].

We can use a large number of tools to measure and diagnose learning organisations. The used tool depends on the different definitions of the learning organisation. The definition of the learning organisation by Marsick and Watkins [10] is also one of these tools.

Tab. 1 *Seven learning organisation dimensions*

No. of Dimension	Dimension
1	Create continuous learning opportunities
2	Promote inquiry and dialogue
3	Encourage collaboration and team learning
4	Create systems to capture and share learning
5	Empower people toward a collective vision
6	Connect the organisation to its environment
7	Provide strategic leadership for learning

Source: own processing of [1, 2]

According to Marsick and Watkins, there are seven dimensions that characterise the learning organisation culture. Individual dimensions then represent the efforts of organisations to create learning opportunities for all employees, the effort to create a platform supporting dialogues, reactions and experiments among members, team learning, vision sharing or strategic leadership [3].

All dimensions are interconnected, which can aggravate statistical evaluation of analyses [16]. When comparing organisations with dimensions, we can see a correlation between dimensions, knowledge and financial performance [2, 4].

Implementation of the learning organization concept in Czech companies has not yet been dealt with to a great extent and only basic references, assumptions and assertions can be found in the literature. This finding has opened up space for carrying out a study that, using the "Dimension of a Learning Organization" questionnaire, has evaluated the rate of introduction of the concept of learning organization in the surveyed companies.

Methods

To compare this study with published foreign studies [5], a cross-section questionnaire survey was conducted between December 2017 and February 2018. This survey was focused on small and medium-sized organizations in the IT sector in the Czech Republic. The respondents were sent a questionnaire via e-mail addresses obtained from the Albertina Business and Marketing Database [11]. The size of the organization and the sector of activity

were selected as a business selection criterion. The business sectors were entered by the CZ-NACE code, the predominant activity, specifically: [15]

J – Information and communication activities – 62.0 – Activities in the Information Technology field – 62.01 – Programming - 62.02 – Information Technology Consultancy - 62.03 – Computer Equipment Management – 62.09 – Other IT activities

For this survey, a Dimension of a Learning Organisation questionnaire was selected in a 21-issue questionnaire version focusing on the 7 dimensions of a learning organisation [2]. Thanks to its expansion, this questionnaire is easily comparable to foreign studies. This questionnaire also provides adequate measurement results with its focus on the seven dimensions of a learning organisation. To maintain the validity of the questionnaire, the questionnaire was translated by two independent translators from English into Czech and then back to English. At the same time, retaining the meaning of the questionnaire was considered. For each dimension, Cronbach confidence coefficient was calculated using IBM SPSS Statistics Version 24. The Alpha coefficient ranged from 0.683 to 0.860 for each dimension. Overall, the value of the coefficient was 0.933. The calculated values of the Cronbach coefficient appear to be satisfactory (the coefficient higher than 0.7 is "satisfactory") [8]. Individual dimensions were assessed by the respondents on the 6-point Likert scale.

In order to verify the clarity of the questionnaire, a pilot study was initially carried out. This pilot study was carried out with a total of 20 students from the combined study of the Master's degree program in Information Management. The final version of the questionnaire was created using "docs.google.com". In total, 2,884 respondents were addressed. Approximately 250 of the e-mail addresses no longer existed; 25 respondents are currently not in business.

The obtained data were analysed using Microsoft Excel 2016 and IBM SPSS Statistics version 24 using descriptive statistics, parametric and non-parametric tests at confidence levels $\alpha = 0.01$ and $\alpha = 0.05$.

Results

In order to verify the questionnaire, a pilot study was carried out, involving 20 students from the combined study of the Master's degree program in Information Management at the Faculty of Informatics and Management in Hradec Králové. These respondents are employed in the following areas: software development, telecommunications, IT, electronics production, internet sale, sales, law, health, advertising, government, work with children, transport and logistics, sports, energy and heating. The data from the pilot study were evaluated using Microsoft Excel 2016 and the IBM SPSS Statistics version 24 statistical programme.

After evaluating the pilot survey, information on the organisation's size and the position in the organisation was added to the questionnaire.

Tab. 2 Cronbach alpha for each dimension

Dimension	Cronbach α
D1: Creating opportunities for systematic learning	0.721
D2: Support for polling and dialogue	0.860
D3: Encourage team learning and collaboration	0.761
D4: Creating systems for capturing and sharing learning	0.683
D5: Motivating people for a collective vision	0.796

Dimension	Cronbach α
D6: System interfaces	0.765
D7: Strategic guidance for learning	0.791

Source: own

Using the Cronbach alpha reliability indicator, the reliability of each dimension was determined. All dimensions, except dimension 4, met the required reliability value; total reliability is relatively high ($\alpha = 0.933$). Although dimension 4 (Creating systems for capturing and sharing learning) didn't reach 0.7 value, it's significantly close to this value (0.017 difference), so this value can also be considered satisfactory.

A total of 2,884 respondents from small and medium-sized companies from the Czech Republic with a focus on information technology activities were addressed. The study involved a total of 201 respondents (return on questionnaires was 6.97%). Organisations employing up to 10 employees, up to 50 employees and 250 employees were represented in the study (Figure 1).

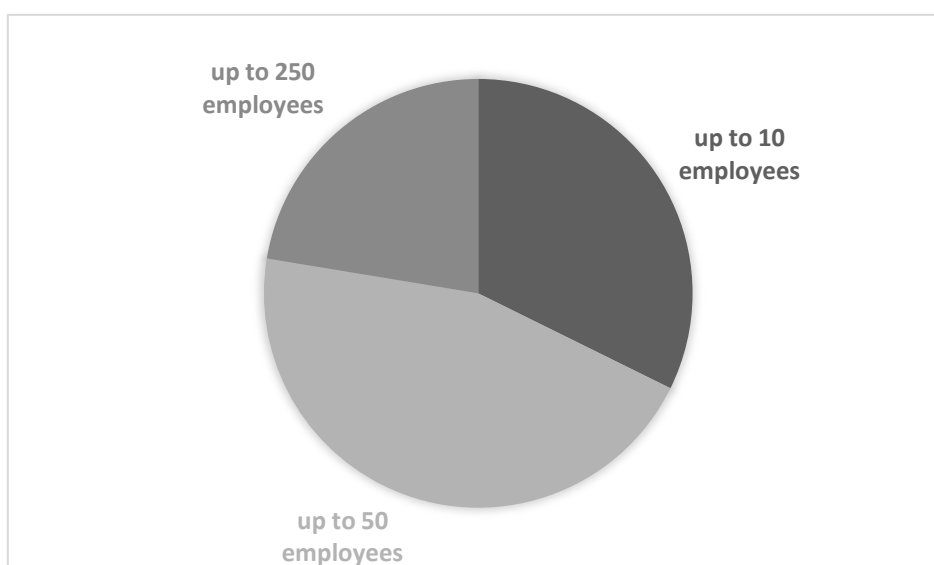


Fig. 1 Percentage of enterprises in the study

Most of the respondents were aged 31-50 years old. General staff accounted for 35.8% of the respondents and managers accounted for 64.2% of the respondents. The respondents reported employment time in the organisation up to five years, followed by 11 - 15 years.

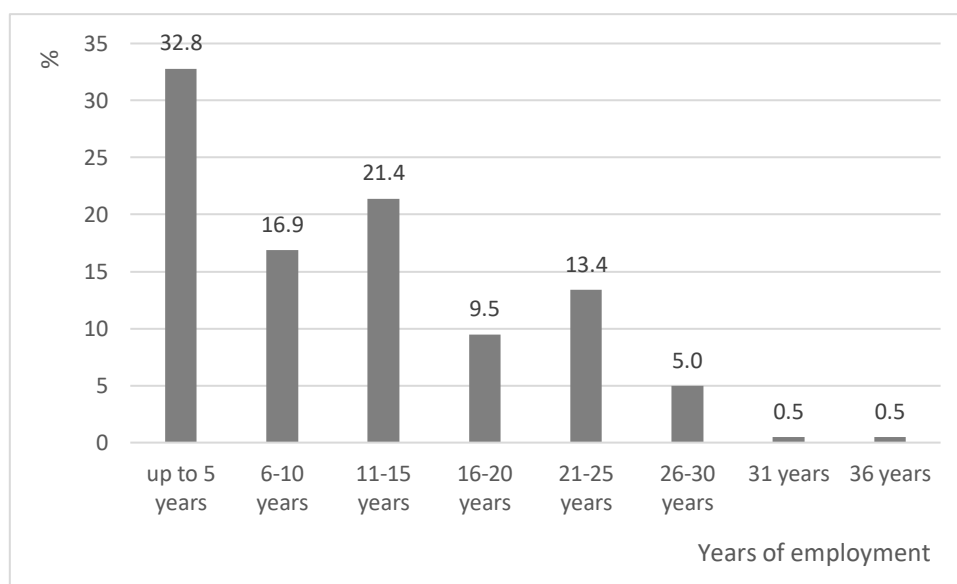


Fig. 2 Time of employment in the company

When comparing the evaluation of individual questions, one can say that none of the questions received less than half of the points. The respondents gave the worst rating in questions 10 and 11: "My organisation creates systems to measure the difference between actual and expected performance", with an average rating of 3.386, and "My organisation makes all evaluations available to all employees", with an average rating of 3.236. The greatest indecision throughout the evaluation by respondents was expressed in question 20: "In my organisation, managers look for opportunities for further education.", where they identified two values on the Likert scale from which the average was calculated.

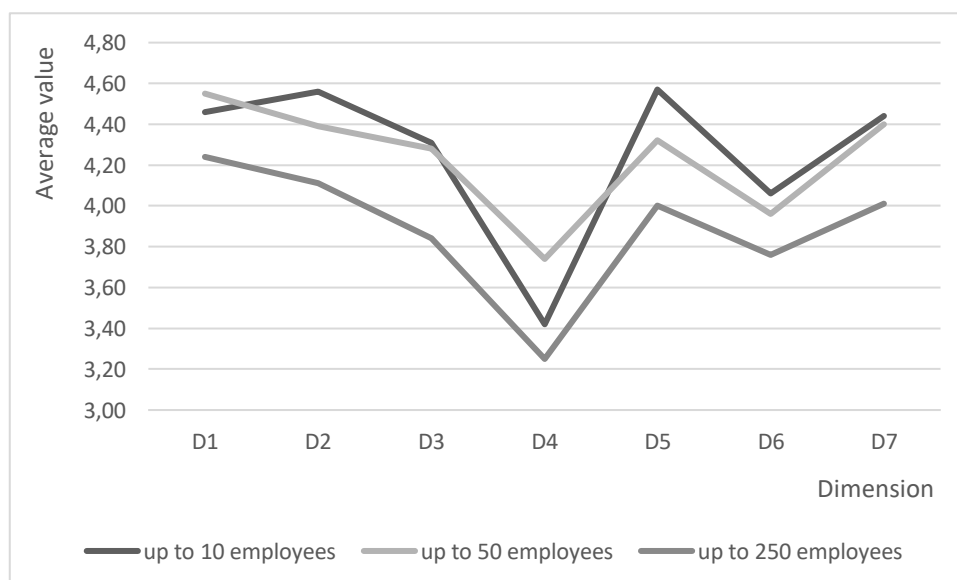


Fig. 3 Comparison of results by company size

Descriptive statistics show the highest assessment of dimension 1 - "Creating opportunities for systematic learning" and the lowest assessment of dimension 4 - "Creating systems for capturing and sharing learning". The assessment of most dimensions is fairly balanced; it can not be claimed that organizations in the Czech Republic do not contain any features of an educational organization (values close to four can be understood as consent with the claims in individual dimensions). If we compare t-test results of individual dimensions by gender, we find that there is no statistically significant difference ($p = 0.986$) between males and females at a significance level of $\alpha = 0.05$. The positive assessment of dimensions 3, 4 and 5 is growing with growing learning time (up to 35 hours per month); when people learn for more than 35 hours per month, the assessment decreases a little. The T-test reveals a statistically significant difference between people learning for "0 hours" per month and other groups of respondents engaged in learning ("1-10 hours" $p = 0.00028$; "11-20 hours" $p = 0,00025$, "21-35 hours" $p = 0.000092$, "more than 36 hours" $p = 0.00074$, $\alpha = 0.01$).

Discussion

Extension of the concept of the learning organization in the Czech Republic has not been described yet. This work is focused on evaluation of the concept of learning organization in information technology organizations registered in the Czech Republic.

A DLOQ questionnaire can be used to review the organization's up-to-date learning situation, which allows us to measure both changes in the organizational climate as well as changes in the culture, systems, and organization structures that affect individual learning [2].

If we compare the average results of each dimension, we will find out that all dimensions are highly correlated with each other, which is consistent with Watkins and O'Neil [5].

The following table shows an example of studies conducted abroad, along with an average rating score for each dimension. The total number of respondents in the comparative studies was $N = 2854$.

Tab. 3 Comparison of DLOQ results with other studies

Autor studies	N	D1	D2	D3	D4	D5	D6	D7
Watkins and Marsick	389	3.94	3.91	3.98	3.50	3.74	4.00	4.13
Selden	142	5.01	4.05	4.09	3.44	3.83	4.17	4.49
McHargue	264	4.16	4.15	4.33	3.78	4.20	4.35	4.73
Lien, Yang, Li	79	3.97	4.05	4.00	4.13	4.08	4.01	4.26
Hernandez	906	3.94	4.16	4.01	4.09	4.21	3.96	4.27
Maria	628	4.05	4.08	3.84	3.96	3.79	3.98	4.21
Ellinger	208	4.12	4.04	4.13	3.70	3.93	4.19	4.26
Milton, Watkins	37	4.26	4.35	4.32	3.13	4.15	3.99	4.42
Weighted average		4.06	4.09	4.01	3.86	3.99	4.04	4.29
Zubr	201	4.45	4.39	4.19	3.52	4.33	3.94	4.33

If we compare the results of this study with already conducted studies, we can say that the results obtained from organizations from the IT sector in the Czech Republic are satisfactory and in 5 out of 7 dimensions higher than the weighted average of the foreign studies conducted. By comparison with the weighted average of the results, it can be concluded that organizations in the IT sector in the Czech Republic meet most of the dimensions of the learning organization better than organizations in foreign studies. Higher assessment of organizations should give organizations a greater strategic advantage [5]. Only in two dimensions, organizations in the Czech Republic have a lower average score. Specifically, it is dimension 4 "Creating systems for capturing and sharing learning" and dimension 6 "System interfaces". If we compare the average value from the comparative studies with the completed study in the Czech Republic, there was no statistically significant difference between the individual dimensions of the learning organization concept ($p = 0.658$, $\alpha = 0.05$).

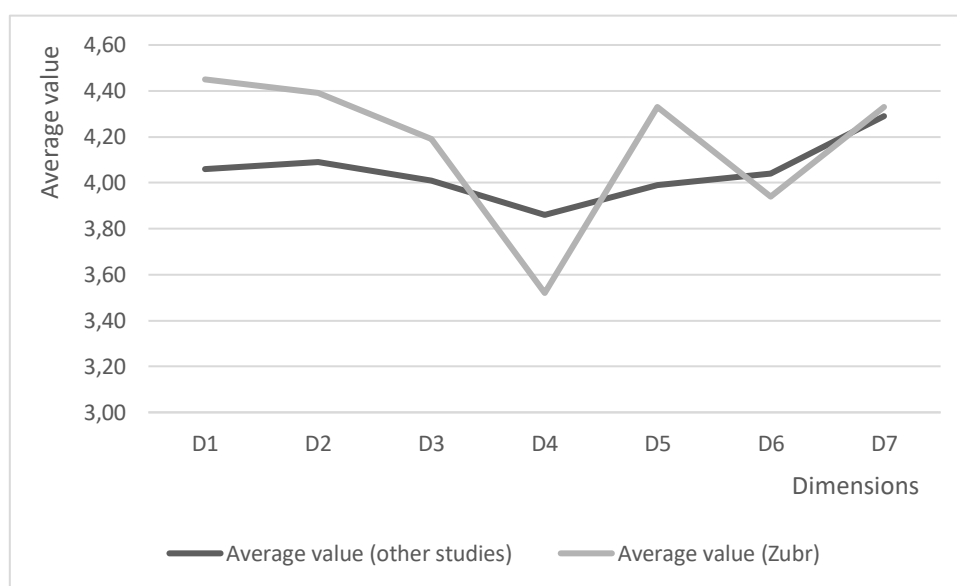


Fig. 4 Comparison of the results with foreign studies

Conclusions

Based on the results of the survey, it can be argued that there has been a shift in applied human resources development models in Czech IT organizations towards a learning organization. For the Czech organizations that participated in this study, it is especially recommended to focus on dimensions four and six (the lowest average rating).

Although the topic of the learning organization is supported by the European Union, there is still a lack of deeper studies in the Czech Republic that would be focused on learning organizations. The topic needs to be solved in the European context.

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