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ASSESSING THE FEASIBILITY OF INTRODUCING A WORK BASED LEARNING (WBL) MODULE IN SMES

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ABSTRACT. Social research is a critical tool for evaluating issues of public concern, which provides insights into societal trends and potential consequences of actions taken at both individual and collective levels. These studies are frequently conducted through the administration of surveys, which gather data from respondents using structured questionnaires. A questionnaire may consist of a single question or a set of interrelated questions designed to capture a wide range of perspectives. Once collected, the survey data is subjected to various analytical techniques, each serving a distinct purpose. Some methods aim to enhance the homogeneity of the data by standardizing responses, ensuring comparability across different segments of the population. Other techniques focus on assessing the relevance and significance of each question in relation to the phenomenon under investigation, ensuring the validity and depth of the analysis. This paper introduces a novel methodology for quantifying the entirety of responses obtained from a questionnaire. The index takes into account the fact that the scales of responses to the questions may be heterogeneous, and also assesses the varying importance of the responses.

JEL Classification: I25, J24, C38

Keywords: social research, survey of respondents, quantitative assessments

Introduction

Today, social research is widely used to address a wide range of social problems. Most of the time, it is carried out through surveys and questionnaires with multiple-choice questions. The number of questions depends on the nature of the problem (NP) being addressed: if the problem is simple, it is limited to a single question, but as the degree of complexity of the problem increases, the number of questions increases too and may reach several dozen. The number of answer options may also vary; they may be verbal or numerical. In the simplest case of verbal answers, there are only two answers: 'yes' or 'no'. In more complex scenarios, the range of responses can be expanded, e.g., from 'strongly agree' to 'strongly disagree', thereby introducing a total of five answer options. The numerical scales are expressed as scores. This

makes it possible to use a wide range of response numbers - two, three, five, seven, ten, etc. The meanings of the extreme values of the scale are indicated.

In social surveys, the number of respondents, as reflected by the sample size, is an important consideration (Stockemer, Stockemer & Glaeser, 2019). It depends on the size of the general population, also known as the population of interest.

Survey data can be collected in different ways. The most widely used approach today is the online survey. Its effectiveness is demonstrated by the number of responses received. The approach can be enhanced by choosing the right criteria for selecting respondents. In most cases, they should be people who have deep knowledge of the issue, work in the field, and so forth.

In social research, the processing of survey results plays an important role. Various statistical programmes have been developed for this purpose. The most common and widely used statistical analysis software package is the SPSS program, which calculates the essential characteristics of the data, including frequencies, means, modes, medians, etc. (De Vaus, 2013; Čekanavičius & Murauskas, 2006, I and II; Babbie, 2007; Creswell, 2009). Over time, the objectives of processing the survey data have changed and the above characteristics are no longer sufficient. The limitations of their application are reflected in the fact that they can only be used to calculate and analyse homogeneous data, i.e. the statistical totality of responses to individual questions. It is, therefore, not possible to use them as a basis for a generalised assessment of the responses to all questions. This is particularly important in the social sciences, where the issues at stake are complex, and where the assessment is therefore based on a system of questions rather than a single question. Comprehensive assessments are necessary for the targeted management of the phenomenon under study (Hogeforster & Ginevičius, 2024; Skačkauskienė & Kiselevskaja, 2014; Hwang & Yoon, 1981). In addition, integrated evaluation is also necessary to compare similar research objects, e.g. the popularity of political parties, the quality of corporate personnel, etc., i.e. all phenomena whose research and evaluation of its results are based on a survey of respondents.

One critical issue that needs to be addressed is the assessment of the feasibility of introducing the Work-Based Learning (WBL) model in the country's small and medium-sized enterprises (SMEs). Work-Based Learning (WBL) refers to a range of educational strategies and programs that integrate academic knowledge with practical application in a real-world professional environment (Hogeforster 2014). This is particularly important because, in today's fast-evolving global economy, the competitiveness and sustainability of enterprises are heavily reliant on the quality and skills of their workforce. In particular, the soft skills that are learned on the job can be a decisive factor (Andrews & Higson 2008). With rapid advancements in technology and shifts in market demands, companies must continually adapt and upskill their employees to stay ahead. The WBL model is specifically designed to address this pressing challenge by integrating formal education with hands-on, practical learning experiences in the workplace. This kind of education started with classical apprenticeships (Graf 2016) of today's EQF level 3 and is today also available for academic master courses (Grooters, Zaal & Gerkema 2022) up to EQF level 7. The introduction of the WBL model provides SMEs with a framework for training employees in real-world settings, allowing them to gain the skills necessary to meet the specific needs of the business. By doing so, the WBL model bridges the gap between theoretical knowledge and practical application, which is often a shortfall in traditional education systems. Employees trained under this model are better equipped to handle the demands of their jobs, making the enterprise more agile and competitive in a rapidly changing market.

Moreover, the implementation of the WBL model is not just beneficial for individual enterprises, but also for the broader economy. A more skilled workforce contributes to

increased productivity and innovation, which are key drivers of innovation and economic growth. In this context, assessing the feasibility of introducing the WBL model in SMEs becomes even more crucial, as it provides policymakers and business leaders with insights into the challenges and opportunities of adopting such a system. Through careful assessment, it is possible to identify potential barriers, such as resource limitations or lack of awareness, and develop strategies to overcome them. Additionally, it allows for the identification of best practices from other regions or industries that have successfully implemented WBL, facilitating knowledge transfer and experience-sharing across different sectors. Ultimately, by addressing this issue, the WBL model can significantly enhance the quality of human capital, strengthening SMEs and positioning them for long-term success.

The aim of the paper is to calculate, in an appropriate way, an index reflecting the feasibility of implementing the WBL model in SMEs in the analysed countries, based on the respondents' verbal survey data.

1. Literature review

Various mathematical methods have been developed to process and analyse the survey data. Many of them are designed to deal with specific data-related problems, e.g. missing data, the need to preserve respondents' privacy, etc. Such methods are used for statistical analyses such as contingency tables, chi-square tests, logistic regression, etc. (Yigzaw et al., 2016). Literature sources show that the most widely used is the SPSS statistical analysis software package (Greasley, 2007; Berkman & Reise, 2011; Hanges & Dickson, 2004; Mishchuk et al., 2024; Toleikiene & Rybnikova, 2013). Different types of mean values are calculated - arithmetic and structural - mode, median. For example, based on the GLOBE methodology related to this package, students assessed the characteristics of a modern manager. The result of the study was a mean score reflecting these characteristics (Toleikiene, Rybnikova, 2013). Other studies have used Fisher's information to reduce the dimensionality of questionnaire data. This approach has been successfully applied to the analysis of categorical variables (Har-Shemesh et al., 2020). The SPSS software package was also used to identify the advantages and disadvantages of temporary employment. Responses to the questions are expressed as percentages (Tilindienė & Gailiūnienė, 2014).

Boolean algebra is also used to analyse the survey data. The essence of this analysis is the search for relationships between questionnaire variables. For example, if all respondents answered 'yes' to question X and 'yes' to question Y, the relationship is represented by $X \rightarrow Y$. This way, the relationships between all responses to the questions are identified. Boolean algebra summarises the whole. A questionnaire of n binary variables produces a set of $2n$ possible answer patterns. The two-sided partition of this set defines a Boolean equation, the solution of which results in a consequence. Based on sociological survey data, the above-mentioned relationships were highlighted and a structured analysis of the binary response patterns was carried out (Degenne & Lebeaux, 1996). Another study used the Macdonald and MacIntyre Job Satisfaction Scale to assess the job satisfaction factors of dental assistants (Macdonald & MacIntyre, 1997). The results of the study were expressed as a percentage of respondents' answers (Svedaite, Tamosiunas, 2013). The specific problem of processing survey results is addressed in a study where the transformation of ordinal questionnaire data aims to reduce the error variation and thus improve the properties of the metric. In this way, true values are better identified. This data transformation approach has been validated in the study by Monte Carlo studies. It has been reported that survey data is often subject to errors. The transformation allows for reducing the error variance and thus to improve the metric properties of individual variables. The study discusses the possibilities of applying such a transformation

(Gleason & Staelin, 1973). The usual survey data processing was used to investigate students' opinions on independent work. Attitudes were measured in percentages (Repečkienė et al., 2014). In the survey, respondents are given the opportunity to change their opinion. In this case, Fuzzy logic can be applied to reduce uncertainty. It allows to get a clearer picture of the subjective responses. The analysis of the survey results is based on well-established mathematical methods, where the effect of independent variables on dependent variables is examined. It is measured by the R-squared. It is reported that this way of analysing the data does not take into account the ambiguity of the responses to the questions. Fuzzy logic as a methodology allows for this uncertainty to be taken into account (Schmidt & Steindorf, 2006).

The literature reviewed shows that some of the studies focus on improving the homogeneity of the survey dataset. Another part of the study is limited to determining the importance of individual indicators for the phenomenon under study. There are practically no studies that focus on the aggregate quantification of the questionnaire as a whole. In one case, an attempt is made to do so (Skačkauskienė, Kiselevskaja, 2014). The SPSS software is used to analyse the factors that motivate employees. The answers to the formulated questions are presented on a Likert scale, i.e. from "strongly disagree" to "strongly agree". The extreme 'strongly disagree' is given a score of 1 and the extreme 'strongly agree' is given a score of 5. The scores for the individual questions have been aggregated into a group index of motivational factors. The following formula is proposed:

$$Q = \frac{\sum_{i=1}^{n} V_{ij}}{\sum_{i=1}^{n} V_i^{\max}} \cdot 100, \quad (1)$$

here Q - an index reflecting employee motivation factors; V_{ij} - the score estimate of the response of the *j-th* respondent to the *i-th* question ($i = \overline{1,n}$, $j = \overline{1,m}$); $V_i^{\max}$ - the maximum possible score for the responses to question *(i)*.

Formula (1) shows that $\sum_{i=1}^{n} V_i^{\max} = n \cdot V_i^{\max}$. For example, if $n = 7$, then, based on the fact that the maximum possible answer to all questions is 5, we get: $7 \cdot 5 = 35$.

The analysis shows that formula (1) suffers from two fundamental flaws. Firstly, it is only valid if the rating scale is the same for all questions (in this case, 1 to 5). Secondly, it does not take into account the different importance of the answers in relation to the index sought. Let us say that we have the response estimates of two respondents (Table 1).

Table 1. Estimates of respondents' answers to the questions

Respondents	Questions					Total
	1	2	3	4	5	
First	5	4	3	2	1	15
Second	1	2	3	4	5	15

Source: own compilation

Table 1 shows that, although the estimates of the first respondent are radically different, in both cases the index Q will be the same, i.e. 60%.

The relevance of the aggregated assessment is today at least for several reasons: firstly, it provides an opportunity to compare related objects of study - political parties, various social issues of public interest, regional politics, etc.; secondly, the aggregated index can help not only to formulate targeted measures to improve the current situation, but also to evaluate their effectiveness. One such social problem is the assessment of the feasibility of effective ways of improving the skills of employees in small and medium-sized enterprises. Today, the main such approach is the Work Based Learning (WBL) model.

2. Survey methodology

The quantitative assessment of the feasibility of implementing the WBL model in the country's SMEs is based on verbal information obtained through oral interviews. The latter is carried out on a questionnaire basis. Respondents are given the opportunity to answer multiple choice questions in a questionnaire (Table 2).

Table 2. Questionnaire for assessing the feasibility of the WBL model for SMEs in the country

Eil. No.	Question for	Options for answering the questions						
		1	2	3	...	j-asis	...	*m*
1								
2								
3								
⋮								
i								
⋮								
n								

Source: own compilation

The results of the survey are summarised by weighting the response options. This is the starting point for further calculations. The aim is to obtain aggregated ratings for each question as well as for all questions. Depending on the nature of the questions, the number of response options may vary. In addition, when looking for a generalised figure, it must be taken into account that both the questions and the answer choices are of varying importance for the phenomenon or process under consideration. This leads to two problems in determining a generalised size for the answers to a question, which can be referred to as a partial index. Firstly, the unequal importance of the response options needs to be assessed in an appropriate way; secondly, their importance needs to be determined in such a way as to take account of the unequal number of them. The literature shows that the first problem can be solved by assigning appropriate ranks to the response options (Bivainis, Morkvenas, 2008). On the other hand, they are too simplistic, i.e. the most important response option is given a rank of 1 and the least important one a rank of *m* (*m* is the number of response options). It also remains unclear how the importance ranks are assigned when the problem under consideration is described by *n* questions and when the number of response options varies. Without such a possibility, it is not possible to summarise in a comprehensive way the whole phenomenon or process in question.

To assess the feasibility of implementing the WBL model in SMEs, 13 multiple-choice questions were formulated. The assessment of the condition was carried out on the basis of the IMU methodology (Ginevičius, 2024). The essence of the methodology is that, on the basis of a summary questionnaire in which the answers were arranged in descending order, the answer options are first expressed as percentages. This is followed by a calculation of their relationship to the best answer option:

$$\Delta\tilde{q}_{ij} = \frac{q_{ij}}{\tilde{q}_j}, \tag{2}$$

here $\Delta\tilde{q}_{ij}$ - the value of the ratio of the answer to the best answer to question j, option *i;* q_{ij} - the value of the response to the *i-th* option *of* question *j;* $\tilde{q}_j$ - the value of the best response to question *j*.

It is easy to see that for the best answer option $q_{ij} = \tilde{q}_j$, so in this case $\tilde{q}_{ij}$ will be 1.

Once the transformed values of the response options have been calculated, the next step is to determine the importance ranks for each option. This process involves assigning ranks based on the number of available response options, ensuring that each option is appropriately weighted according to its significance.

This can be done in a similar way to the weighting of indicators. They are expressed in unit fractions subject to the condition that $\sum_{i=1}^{m} \omega_i = 1{,}0$ (here ω_i - the weight of *the i-th* indicator). In addition, care is taken to ensure that $q_i \neq q_{i+1}$. In our case, ranks rather than weights are determined, so that they vary by the same amount between response options. This is preceded by determining the number of response options for question *j* for which the transformed importance ranks are determined x_j:

$$x_j = N - \left(\widetilde{N}_j - 1\right), \tag{3}$$

here N - the maximum number of answer choices among all questions; $\widetilde{N}_j$ - the number of answer choices for question *j*.

It is now possible to determine the change in the importance ranks of the response options for each question with respect to the importance rank of the best response option, i.e. one, Δr_j:

$$\Delta r_j = \frac{1}{x_j}. \tag{4}$$

The transformed importance rank of the answers to *the i-th* option of question j is obtained as follows:

$$r_{ij} = 1 + (i - 1)\Delta r_j, \tag{5}$$

here r_{ij} - the transformed value of the importance rank of the *i-th* option of the answer to *the* j-th question.

The transformed value of the *i-th* option of the answer to question *j* will be determined as follows:

$$\tilde{q}_{ij} = r_{ij} \cdot q_{ij}, \tag{6}$$

here $\tilde{q}_{ij}$ - the transformed value of the answer to question *j in* option *i.*

The final value of the answer to question *j* can now be determined for option *i in* relation to the best option:

$$\tilde{\tilde{q}}_{ij} = \frac{\tilde{q}_{ij}}{q_j^{\max}}, \tag{7}$$

here $\tilde{\tilde{q}}_{ij}$ - the final value of the answers to question j, option *i;* $q_j^{\max}$ - the transformed value of the best answer to question *j* (the same as the original value).

Size $\tilde{\tilde{q}}_{ij}$ sum gives a summary score for question *j:*

$$Q_j = \sum_{i=1}^{n} \tilde{\tilde{q}}_{ij}, \tag{8}$$

here Q_j - the value summarising all the answer choices for question *j*.

Size Q_j does not fully reflect the current situation, as it is expressed as an absolute rather than a relative value, i.e. a coefficient. This requires setting the maximum possible Q_j value. This will be obtained if all the answers to question *j* are assigned to the best option. In this case Q_j the value will be 1 and the index to be searched will be calculated as follows:

$$R_j = \frac{1}{Q_j}, \tag{9}$$

here R_j - the summative value or partial index of the responses to question *j*.

In order to obtain an index that summarises the entire phenomenon or process under consideration, it is first necessary to determine its maximum value. We know that, ideally, the size of Q_j is equal to 1. Hence and R_j the maximum value $R_j^{\max}$ will be equal to 1,0. In this case, for the entire phenomenon or process under consideration, the maximum R_j value will be equal to R_j sum:

$$R^{\max} = \sum_{j=1}^{m} R_j^{\max}, \tag{10}$$

here $R^{\max}$ - the maximum possible value of the phenomenon or process under consideration R_j value.

The aggregate value or index will be equal to:

$$K = \frac{\sum_{j=1}^{m} R_j}{R^{\max}} = \frac{\sum_{j=1}^{m} R_j}{m}, \tag{11}$$

here K - the value of the index summarising the phenomenon or process in question.

3. Empirical study

The study is based on survey questions reflecting the feasibility of WBL deployment in SMEs in the countries concerned (Table 3). This survey was carried out between 2020 and 2023 and covered more than 30 European countries. Based on the formula for calculating the statistical sample size (Čekanavičius, Murauskas, 2006), the required number of respondents was set at 216. The number of responses to the questions sent via the Internet was 295, which is representative (Hogeforster & Wildt, 2020).

Table 3. Questions reflecting the capabilities of SMEs in WBL countries

Factor No	Name of the factor
1.	Professional background of person assessing the relevance of the WBL model
2.	Number of employees in the company
3.	Experience of working in a WBL system
4.	Experience in training company staff in WBL
5.	Content with participation in a WBL system
6.	Recommendation for other companies to implement the WBL model
7.	Professional background of person assessing the relevance of the WBL model
8.	Number of employees in the company
9.	Experience of working in a WBL system
10.	Experience in training company staff in WBL
11.	Content with participation in a WBL system
12.	Recommendation for other companies to implement the WBL model
13.	Awareness of the benefits of information on the WBL model

Source: own compilation

Based on the questionnaires, the weights of the response options were determined (Table 4).

Table 4. Comparative weights of responses to the questions reflecting the feasibility of implementing the WBL model in SMEs in the countries

Question No.	Options for answering the questions					
	1	2	3	4	5	6
	Weighting of responses to questions, %.					
1	54.9	29.8	8.8	4.8	1.7	-
2	30.8	26.3	17.3	13.5	7.0	5.1
3	42.4	38.0	16.5	3.1	-	-
4	22.2	23.8	27.0	22.2	4.8	-
5	47.6	36.5	11.1	1.6	3.2	-
6	88.9	9.5	1.6	-	-	-
7	36.5	25.9	24.7	9.4	2.3	1.2
8	53.8	44.9	1.3	0.0	-	-
9	50	25	25	0.0	0.0	-
10	37.2	29.7	22.6	10.5	0.0	-
11	33.8	8.4	26.2	10.1	20.7	0.8
12	9.0	17.0	15.0	33.0	26.0	-
13	3.6	3.6	10.7	3.6	46.4	32.1

Source: own compilation

The values calculated from Table 4 and formulae (2)-(9) Q_j and R_j for the first question (Table 5).

Table 5. Sizes Q_j and R_j calculation for question 1 (source: compiled by author)

	Options for answering the question					Total
	First	second	Third	Fourth	Fifth	
q_{ij}	54.9	29.8	8.8	4.8	1.7	100
x_j	$x_j = 6 - (5 - 1) = 2$					-
Δr_j	$\Delta r_j = 1/2 = 0.5$					-
r_{ij}	1	1.5	2	2.5	3	-
$\tilde{q}_{ij}$	54.0	44.7	17.6	14.4	5.1	-
$\tilde{\tilde{q}}_{ij}$	1	0.81	0.32	0.26	0.09	2.48
R	$R = 1/2.48 = 0.4$					

Source: own compilation

The results of the calculation of all partial indices are given in Table 6.

Table 6. Results of the calculation of the partial indices reflecting the feasibility of the WBL module in SMEs in the countries

Indicators	Question numbers													Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	
Q_j	2.48	4.25	6.20	2.89	2.50	1.20	3.39	2.14	2.38	2.49	4.01	18.06	43.63	-
R_j	0.40	0.24	0.16	0.35	0.40	0.83	0.29	0.48	0.42	0.40	0.25	0.06	0.02	4.30

Source: own compilation

Based on sizes R_j and formulae (10)-(11), the value of the generalising index can be determined:

$$K = \frac{4.30}{13} = 0.33.$$

The question is, what is the situation reflected in this index value? Calculations show that if it is at least 0.2, it is sufficient. It can be concluded that the potential for WBL adoption by SMEs in the countries under consideration is good.

Conclusions

The rapid and dynamic development of the modern world brings with it an ever-growing array of challenges across various sectors. These problems, ranging from social and economic to environmental and technological issues, require timely identification and thorough analysis to understand their potential implications. In this context, social research has become an indispensable tool, as it helps to illuminate emerging challenges and foresee their possible consequences. It is no surprise that social research has gained increasing importance in recent years, given the complex, interconnected nature of global problems and the need for evidence-based solutions. Surveys remain the most commonly employed method in social research due to their versatility and ability to gather large amounts of data from diverse populations. Surveys are generally based on structured questionnaires, where respondents are presented with predefined answer options, either in verbal form (e.g., "agree" or "disagree") or numerical form (e.g., rating scales). The effectiveness of these surveys, and the value of the data they generate, depends heavily on the methods used to process and analyze the responses. A variety of methods exist for this purpose, each designed to address different aspects of the data. Some methods aim to enhance the homogeneity of the data set, thus improving the reliability and

validity of the analytical results. Others focus on assessing the significance of individual questions in relation to the phenomenon under investigation, ensuring that the analysis captures the most relevant factors. Despite the wide array of data analysis techniques, a review of the literature reveals a key gap in existing methodologies. No comprehensive approach has been proposed for quantifying the responses to a questionnaire as a whole in order to derive an index that reflects the overall situation under study. This gap limits the ability of researchers and practitioners to fully evaluate complex phenomena, particularly when multiple variables are at play. To address this issue, the present paper introduces a novel methodology for quantifying the feasibility of implementing the Work-Based Learning (WBL) model in small and medium-sized enterprises (SMEs) across different countries. The proposed methodology is based on a carefully structured questionnaire consisting of 13 questions, each with its own response scale tailored to different dimensions of the WBL model. Importantly, the index generated through this methodology takes into account the varying significance of different response options, thus ensuring a more nuanced and accurate reflection of the data. This type of quantitative assessment is particularly valuable as it allows for cross-country comparisons, enabling policymakers and business leaders to transfer successful practices and learn from each other's experiences. Moreover, such an assessment provides insights into the specific areas where improvement measures are most needed, helping to target efforts more effectively and improve the feasibility of WBL model implementation. Ultimately, this approach contributes to a more informed and strategic approach to workforce development in SMEs, fostering greater competitiveness and adaptability in the global economy.

References

Andrews, J. (2008). Graduate Employability "Soft Skills" versus "Hard" Business knowledge. A European Study. *Higher Education in Europe, 33 (4)*, 411 - 422.

Babbie, E. (2007). *The practice of social research. 11th Edition.* Thompson Wadsworth, Belmont.

Berkman, E.T. & Reise, S.P. (2011). *A Conceptual Guide to Statistics Using SPSS.* SAGE Publications, Inc.

Bivainis, J., & Morkvėnas, R. (2008). Assessment of the employees knowledge potential. *Business: Theory and Practice, 9*(2), 105-115. https://doi.org/10.3846/1648-0627.2008.9

Čekanavičius, V., & Murauskas, G. (2006a). *Statistika ir jos taikymai. I knyga.* TEV.

Čekanavičius, V., & Murauskas, G. (2006b). *Statistika ir jos taikymai. II knyga.* TEV.

Creswell, J. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches. 3rd ed. p. cm.* Thousand Oaks, California: SAGE Publications, Inc.

De Vaus, D. (2013, 6th Edition). *Surveys in Social Research.* London: Routledge.

Degenne, A., & Lebeaux, M-O. (1996). Boolean analysis of questionnaire data. *Social Networks, 18*(3), 231-245. https://doi.org/10.1016/0378-8733(95)00275-8

Gaižauskaitė, I., & Mikėnė, S. (2014). *Socialinių tyrimų metodai: apklausa.* Mykolo Romerio universitetas.

Gaižauskaitė, I., & Valavičienė, N. (2016). *Socialinių tyrimų metodai: kokybinis interviu. Aukštojo mokslo studijų vadovėlis / Textbook for higher education studies (K2a1).* Edukologijos ir socialinio darbo institutas / Institute of Educational Sciences and Social Work.

Ginevičius, R. (2024). Complex quantitative assessment of social research survey results. *Journal of International Studies, 17*(4), 278-289. https://doi.org/10.14254/20718330.2024/17-4/16

Gleason, T.C., & Staelin, R. (1973). Improving the metric quality of questionnaire data. *Psychometrika , 38*, 393–410. https://doi.org/10.1007/BF02291662

Graf, L. (2016). The rise of work-based academic education in Austria, Germany and Switzerland. *Journal of vocational Education & Training, 68*(1), 1–16. https://doi.org/10.1080/13636820.2015.1107749

Greasley, P. (2007). *Quantitative Data Analysis Using SPSS : An Introduction for Health and Social Science.* Maidenhead: McGraw-Hill Education.

Grooters, S. &. (2022). Beyond entrepreneurship, raising broad academic professionals: Work-based learning in science from the employers perspective. *Industry and Higher Education, 38*(4), 512-523.

Hanges, P.J., & Dickson, M.W. (2004). The development and validation of the GLOBE culture and leadership scales. Esantis V. Gupta, *Culture, leadership, and organizations : the GLOBE study of 62 societies* (p. 122-151). Sage Publications.

Har-Shemesh, O., Quax, R., Lansing, J.S., & Sloot, P. (2020). Questionnaire data analysis using information geometry. *Scientific Reports, 10*, 8633. https://doi.org/10.1038/s41598-020-63760-8

Hogeforster, M. (2014). Future challenges for innovation in SMEs in the Baltic Sea Region. *Procedia - Social and Behavioral Sciences, 110,* 241–250. https://doi.org/10.1016/j.sbspro.2013.12.867

Hogeforster, M., & Ginevičius, R. (2024). Implementation of the work-based learning model in SMEs: Ranking the indicators of feasibility based on transitivity. *Economics and Sociology, 17*(3), 291-302. https://doi.org/10.14254/2071789X.2024/17-3/15

Hogeforster, M., & Wildt, C. (2020). Recent Developments and Recent Developments and Challenges of the Introduction of Dual Training for SMEs in Countries Around the Baltic Sea Region with a Special Emphasis on Lithuania. *11th International Scientific Conference "Business and Management 2020" May 7–8, 2020, Vilnius, Lithuania* (p. 255-263). Vilnius: VGTU. https://doi.org/10.3846/bm.2020.652

Hwang, C. L., & Yoon, K. (1981). *Multiple Attribute Decision Making. Methods and Application a State-of-the-Art Survey. Lecture Notes in Economics and Mathematical Systems 186.* Berlin, Heidelberg: Springer.

Macdonald, S., & MacIntyre, P. (1997). The generic job satisfaction scale: Scale development and its correlates. *Employee Assistance Quarterly, 13*(2), 1–16. https://doi.org/10.1300/J022v13n02_01

Mishchuk, H., Samoliuk, N., Krol, V., & Vasa, L. (2024). Social integration of internally displaced persons in Ukraine: Perceptions from IDPs vs. the host population. *Economics and Sociology, 17*(4), 61-81. https://doi.org/10.14254/2071789X.2024/17-4/4

Repečkienė, A., Kvedaraitė, N., Žvirelienė, R., & Glinskienė, R. (2014). Motives and benefits of students participation in voluntary activities. *Socialiniai tyrimai [Social Research], 2*(35), 96-107.

Schmidt, M.E., & Steindorf, K. (2006). Statistical methods for the validation of questionnaires--discrepancy between theory and practice. *Methods of Information in Medicine, 45*(4), 409-413.

Skačkauskienė, I., & Kiselevskaja, A. (2014). A system of indicators for evaluating the motivation of employees for work in telecommunication enterprises. *Business: Theory and Practice, 15*(3), 245-253. https://doi.org/10.3846/btp.2014.24

Stockemer, D. (2019). *Quantitative methods for the social sciences.* Switzerland: Springer International Publishing.

Svedaite, E., & Tamosiunas, T. (2013). Investigation of the Advantages and Disadvantages of Temporary Employment. *Socialiniai tyrimai / Social Research, 1*(30), 64–70.

Tamulienė, R., Mačiulienė, D., & Žukauskaitė, V. (2016). Gydytojų odontologų padėjėjų pasitenkinimas darbu ir jį lemiantys veiksniai. *Sveikatos Mokslai / Health Sciences, 26*(6), 231-236. doi:http://doi.org/10.5200/sm-hs.2016.122

Tilindienė, I., & Gailiūnienė, P. (2014). Sportuojančių ir menine veikla užsiimančių Kauno miesto paauglių agresijos raiška [The expression of aggression of adolents involved in sports and artistic activities in Kaunas]. *Socialiniai tyrimai [Social Research], 2*(35), 108-115.

Toleikiene, R., & Rybnikova, I. (2013). What do Lithuanian Students Expect from Leaders? First Results of the GLOBE Study in Lithuania. *Socialiniai tyrimai / Social Research, 1*(30), 52–63.

Yigzaw, K.Y., Michalas, A., & Bellika, J.G. (2016). Secure and Scalable Statistical Computation of Questionnaire Data in R. *IEEE Access, 4*, 4635-4645. https://doi.org/10.1109/ACCESS.2016.2599851