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LEARNING THROUGH QUESTIONING IN OCCUPATIONAL HEALTH AND SAFETY

The safety management system in 16 Estonian enterprises was analysed using the MISHA method. The statistical analysis was conducted for the interpretation of the results on health and safety level in OHSAS 18001 certified and non-certified enterprises. A new learning package "training through the questionnaires" has been worked out for the top and middle managers' to improve their safety knowledge, where the MISHA questionnaire has been taken as the basis. The tool assists SMEs with health and safety requirements according to the legislation, good practices and tacit knowledge.

Keywords: safety management, Factor Analysis, Kaiser Normalization, learning through the questionnaires

1. INTRODUCTION

The knowledge about the occupational health and safety (OHS) is vital for the top and middle managers in order to understand the key issues in health and safety management in the companies. It contains the principles of legislation demands, good practices and the organizational and cultural issues such as leadership and communication skills [1]. From the mid-1980s, the active expansion of tools and methods of occupational health and safety management systems (OHSMSs) has been seen, including OHSAS18001 [2, 3]. The voluntary OHSAS 18001 standard is a supportive tool to design and implement OHSMS. The requirements in the standard are aimed to reduce the number of work accidents, promote recording of incidents and occupational illnesses, and diminish the possible financial losses. A review of the literature connected with the OHSMSs performance in companies

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[4, 5] shows that OHSAS 18001 itself will not improve the situation as the demands are considered too formal, the paperwork too extensive, the implementation too costly and numerous visits by audit teams too bothersome. Therefore, there is still a need for advanced research concerning the measurement properties of OHS management audits [6, 7]. It is also stated that OHSMSs auditors concentrate more on checking formal compliance with the relevant criteria, presented in OHSAS 18001, rather than paying sufficient attention to the technical measures, human factors and ergonomics, and the relationship between employees and employers, which in fact provide a basis for successful step forward from the use of OHSAS 18001 [8]. In the connection with the OHSMSs audits, Blewett [9] highlights the re-conceptualization of their importance where the main centre should be put on the development of healthy and safe working environment, not on auditing the system. In accordance with the above, the presented opinion shows the need [10] to find the new advanced and novel solutions and measures that would improve the performance of OHSMSs. Podgorski [10] offers a tool to assess OHS performance through setting key and proactive performance indicators. The questionnaire covers all individual OHSMS components such as OHS policy and workers participation; organising OHS training programmes and risk assessment processes; evaluating performance, investigation of work accidents and diseases and their impact on OHSMS audit and assessing continuous improvement results. The goals can be set either in numbers or in percentages (for example: number of OHS improvements presented by workers or percentage of periodically verified OHS requirements presented in the specifications). The tool can be used in a large scale enterprise while a systems based on large number of indicators would be very complex, require maintaining extensive documentation and would also generate high number of the personnel involvement [10].

Therefore in the current study a more suitable method for SMEs, MISHA method (Kuusisto, 2000) [11], for safety audits is modified to work as a learning package. The goal of the tool is to improve management's safety knowledge in small and medium sized enterprises (SMEs). The motivation to propose a modified questionnaire in the interview style learning package is the OHS investigation in 16 Estonian manufacturing enterprises. Eight enterprises where the interviews were carried out owned OHSAS 18001 certification while eight enterprises did not own the certification. The statistical verification and the interpretation of the qualitative interviews of the results were presented earlier in scientific publications [12, 13]. The review on the effectiveness of the OHSMS interventions are given in [14] about voluntary (4) and mandatory (5) OHSMS. Four studied voluntary OHSMS interventions reported positive findings such as better safety climate, higher hazard reporting rate by employees, more organizational action taken on OHS. All five studies involving mandatory OHSMSs reported positive findings as well: e.g. employees' higher satisfaction with the physical and psychosocial working environment, employees' more active participation in OHS activities, reduced rates of lost time injury etc.

The aim of the current paper is to propose a concept of "training through the questionnaires" learning package to improve the safety knowledge of the managers' in order to manage professionally key and proactive safety performance word systems.

2. LEARNING FROM INTERVIEWS

The recent research in education science suggests that learning involves skills development through situated action and contact with other persons [15]. The questionnaires compiled for the assessment of safety activities at enterprises can be used as a tool for learning and obtaining more information on safety in companies. Learning is likely to be more effective when participants are actively involved in a dialogue in which they are co-constructors of the meaning [16]. Particularly it is essential for the top and middle managers' as management's commitment to safety is generally acknowledged as a fundamental aspect of successful safety performance [17]. The line managers and working environment representatives (WER) are usually more competent in safety activities due to practical safety training and extensive theoretical training required by OHS regulation [18]. There are several possibilities to learn through questioning: for students [19, 20] and adults in the safety area [15, 21, 22, 23]. It is a well-known fact that asking questions frequently during safety discussions is positively related to learning facts. Edwards and Bowman [19] proved with their study conducted in graduate-level occupational therapy class that improved classroom questioning strategies may contribute to development of higher cognitive skills. Jonnaert et.al [15] state that learners are no longer considered as passive receivers of knowledge, but are acting subjects who have taken their place at the centre of the dynamic process of developing and constructing their own enacted identities and knowledge.

The evaluation of the results of the interviews is essential: it has to be simple, the analysis has to be understandable and the content has to reflect all sides of the safety performance in the company. Therefore the interviewer has to be competent in OHS matters.

3. PRACTICAL PART

During 2014, eight OHSAS 18001-certified (group OHSAS) and eight non-certified (group NOHSAS) Estonian enterprises from different branches of manufacturing participated in 25 interviews with employers, middle-level safety personnel and with safety responsible persons. Altogether 55 questions presented by Kuu-

sisto [11] were asked from each of the person interviewed. The MISHA method (scale 0–3) was used for assessment as the safety auditing method [11]. The expert-interviewer (the first author of the paper) carried out the interviews.

The MISHA [11] method consists of the following safety areas:

A. Organization and administration
   A1. Safety policy
   A2. Safety activities in practice
   A3: Personnel management
B. Participation, communication, and training
   B1. Participation
   B2. Communication
   B3. Personnel safety training
C. Work Environment
   C1. Physical work environment
   C2. Psychological working conditions
   C3: Hazard analysis procedures
D. Follow-up
   D1. Occupational accidents and illnesses
   D2. Work ability of the employees
   D3. Social work environment.

Each area gives 25% of the total, so maximum total score (safety level) is 100. Each safety sub-area (like A1, A2 etc.) includes different numbers of questions (from 3 to 20).

The correlation analysis of all the questions in the MISHA questionnaire showed that the correlation between the components of the questionnaire is very strong or strong ($R < 0.8$). The only group that was not correlated to any other, is D2. Groups B1 and C2 have moderate positive correlations with other groups. All the other groups are strongly correlated with each other at significance level 0.01.

Statistical analysis was performed using IBM SPSS v. 22.0. Firstly, the correlation matrix was generated for all the variables and the analysis shows a strong correlations between the components A1, A2, etc. to the total score, except D2 (work-ability of the employees). KMO and Barlett's test of sphericity produces in the Kaiser-Meyer-Olkin measure of sampling adequacy (0.83) and in the Barlett's test significance (Sig. = 0.000). Therefore, we should be confident that the sample size is adequate for factor analysis.

3.1. OHSAS 18001 certified enterprises (OHSAS)

The best model fit was achieved after reducing the proposed safety management system scale from 12 to 11 and explanatory variables structured in four subscales. The item finally eliminated was B3 – Personnel safety training as it did not show

correlations with other items. This indicates that in Estonian companies, no difference in type (OHSAS or NOHSAS), safety training has been conducted equally, as this is a strong requirement in safety legislation [23].

Table 1. Component matrix (ohsas)

Components	Factor 1	Factor 2	Factor 3	Factor 4
	A1, A2, A3, B1, C2, D2	C3, D1, D3, B2	C1, C2, D2	A3
A1. Safety policy	.924[a]	.741[b]	.646[b]	
A2. Safety activities in practice	.775[a]	.890[b]		
A3: Personnel management	.758[a]	.908[b]		
C1. Physical work environment	.533[b]		–.587[a]	.814[b]
C3: Hazard analysis procedures	.691[b]	.744[a]	.536[a]	–.603[b]
D1. Occupational accidents and disease	.937[b]	.967[a]		
D2. Work ability of the employees	.569[a]		.712[a] / .959[b]	
D3. Social work environment	.811[b]	.761[a]		
B1. Participation	.915[a]		.698[b]	
B2. Communication	.944[b]	.934[a]		
C2. Psychological working conditions	.714a			.803[b]

[a]Extraction Method: Principal Component Analysis. [b]Rotation Method: Varimax with Kaiser Normalization.

In addition, the Varimax rotation with Kaiser Normalization to simplify the definition factors was used (Table 1). These analysis proved that there are statistically four subscales (factors).

3.2. Non OHSAS 18001 certified enterprises (NOHSAS)

The best model fit was achieved after reducing the proposed safety management system scale from 12 to 11 and explanatory variables structured in four subscales. The item finally eliminated was B1, B2 and C2. SPSS then extracted all factors with eigenvalues greater than 1, which leaves us with two factors. Factor 1 represents questions A1, A2, A3, B3, C1, C3, D1, D3 (safety policy, safety activities in practice, personnel management, personnel safety training, physical work envi-

ronment, hazard analysis procedures, occupational accidents and illnesses, social work environment) and Factor 2 represents D2 (work ability of the employees). This analysis seems to reveal that the initial questionnaire in reality is composed of two subscales (Table 2).

Table 2. Component matrix (nohsas)

Components	Factor 1	Factor 2
	A1, A2, A3, C1, C3, D1, D3	D2
A1. Safety policy	.875[a] / .797[b]	.535[a]
A2. Safety activities in practice	.903[a] / .916[b]	
A3: Personnel management	.969[a] / .933[b]	
C1. Physical work environment	.956[a] / .972[b]	
C3: Hazard analysis procedures	.917[a] /.950[b]	
D1. Occupational accidents and disease	.933[a] / .896[b]	
D2. Work ability of the employees		.908[a,b]
D3. Social work environment	.914[a] / .849[b]	
B2. Communication	.868[a] / .849[b]	
C2. Psychological working conditions	.928[a] / .854[b]	
B3. Personnel safety training	.972[a] / .982[b]	

[a] Extraction Method: Principal Component Analysis. [b]Rotation Method: Varimax with Kaiser Normalization.

The results of the correlation, Factor Analysis Principal Component method (including KMO Barlett's test (Keiser-Meyer-Olkin measure of sampling Adequacy)) showed that the questions give the real picture of the safety level at the enterprises, subdivided in one or another way, only the subareas (A1…D3) have to be present, in one or four subsections. The exception is component D2 (workability of the employees) which is not statistically important. None of the companies had a systematic view for the rehabilitation for persons whose work ability has decreased. There was generally no policy how to ensure elderly personnel's work ability. In several companies, the work satisfaction survey was conducted regularly (usually outsourced), but psychological hazards questionnaires were hardly used. Some companies stated that dealing with this issue depends strongly on the management attitudes and knowledge [12, 13].

The statistical analysis indicated the weakest items discussed and practiced in OHSAS and NOSHAS companies. However, the statistics also showed that safety level in NOSHAS companies varies in a great deal and different companies emphasize and acknowledge different safety activities as many factors correlate with each other. Therefore, it is essential to cover all items MISHA proposes but develop the questionnaire further according to observations by the expert-interviewers.

4. THE PROPOSED "TRAINING THROUGH THE QUESTIONNAIRE" LEARNING PACKAGE

The interviews with the learning aims consist of the questionnaire that includes "whether" and "how" questions. In the first case, the answers are "yes" or "no" or "not applicable (NA)"; alternatively, the respondents have to answer descriptively. The total result of the questionnaire is qualitative. If needed, the questionnaire and answers can be developed to the quantitative result. In this case, the employees in the safety chain can compare their knowledge in OHS. The questionnaire was tested in two enterprises (one OHSAS and one NOHSAS) with 3 persons (the employer, safety manager and the working environment representative (WER)). The feedback helped to review questions and make minor corrections. The validation of the questionnaire remains for the future research.

The proposed version of the "training through the questionnaire" learning package based on statistical and qualitative interviews and MISHA method is presented in Table 3.

Table. 3. Learning package for top and middle managers

No.	Activity areas	Related questions
1	Initial status review	Has the company mapped occupational health and safety level and determined current status in at least 3 years' timescale? *Yes/No* If yes, please describe the current status review! Has the labour inspector visited the company within 3 years' time period? *Yes/No* If yes, please describe the conformities and non-conformities! Has the company considered to apply for safety management system certification (eg. OHSAS 18001)? *Yes/No* If yes, please describe your reasons and steps already taken! Has there been any initiatives or pressure to take actions in order to enhance occupational health and safety in the company? *Yes/No* If yes, please describe! Has there been pressure to review your status from any other stakeholders? *Yes/No/NA* If yes, please describe!

Table 3 cont.

No.	Activity areas	Related questions
2	Safety Policy	Does the company have the written policy? *Yes/No* How the employees get acquainted with the policy? *Describe!* How has the company's top management committed itself to the goals of the policy? *Describe!* Does the policy have the following elements: the characterization of the company's safety aims? *Yes/No* the safety tasks and obligations? *Yes/No* How is the policy distributed between the top management, line management, supervisors, working environment specialist (WES), working environment representatives (WER), occupational and health (OH) personnel and other interested parties? *Describe!* Are the following employees' groups taking part in the compile of the safety policy: The top management? *Yes/No* Middle management? *Yes/No/NA* WES? *Yes/No* Line managers? *Yes/No/NA* Employees (e.g. WER)? *Yes/No* How often is the policy renewed? *Tell the timescale!* Who are responsible for revising the policy? *Describe!* In case of existence of environmental and/or quality policy are they connected with company's safety policy? *Yes/ No/NA*
3	Safety Documents	Are the following safety related documents available in written form: Job descriptions? *Yes/No* Instructions for safety training? *Yes/No* Descriptions for training for new workers? *Yes/No* Safety obligation descriptions for all employment stages (incl. top management, WES, WER)? *Yes/No* Safety instructions for all tools, machines and instruments and also for work operations? *Yes/No*
4	Top Management's Safety Knowledge	Is the top management familiar with the following safety aspects: How well the company's work environment and equipment meet the health and safety standards? *Describe!* How well are OHS activities integrated to overall management operations? *Describe!* Are health and safety (H&S) considered when designing the new workplaces? *Describe!* Are H&S aspects considered when the new machines or equipment are purchased? *Describe!* How are the employees satisfied, motivated and feel themselves psychosocially comfortable in the company? *Describe!* What is the safety awareness and performance of the middle management? *Describe!* What are the cost of accidents and occupational diseases? *Describe!* What trend have the insurance costs? *Describe!* What is the cost-effectiveness of the safety measures? *Describe!* How is the occupational health service provider selected (e.g. financial considerations, competence, references, quality of the service)? *Describe!*

Table 3 cont.

No.	Activity areas	Related questions
		Which emergency risks are considered and how are they managed? *Describe!*
5	Middle Management's Safety Knowledge	Is the middle management familiar with the following safety aspects: What is the level of housekeeping in the company? *Describe!* What is the safety level of equipment? *Describe!* Which safety training practices are used in the company? *Describe!* How is the system of personal protective equipment (PPE) managed? *Describe!* What is the employees' risk behaviour (conscious of taking risks?) *Describe!* How to choose the specialist for internal or external safety audit? *Describe!* Which emergency risks are considered and how are they managed? *Describe!*
6	Line Manager's Safety Knowledge	Is the line management familiar with the following safety aspects: What is the level of housekeeping in the company? *Describe!* What is the safety level of equipment? *Describe!* What is the safety training plan in the company? *Describe!* What are the standards for safety of equipment, instruments, and devices? *Describe!* What is the status of PPE? What PPE is needed and how used and maintained by the workers? *Describe!* Which emergency risks are considered and how are they managed? *Describe!* What is the employees' risk behaviour? *Describe!*
7	Safety Managers' (OHS advisor) duties and knowledge	Is the safety manager employed? *Yes/No* What is the safety manager's training and competence? *Describe!* Does the safety manager have enough time to deal with OHS matters? *Yes/No* Does the safety manager have enough resources to deal with OHS matters? *Yes/No* Does the company ask input from safety manager while determining the health and safety resources? *Yes/No* How does the top and middle management support safety manager's everyday activities? *Describe!* Does the safety manager cooperate actively with all interested parties (e.g. WERs, employees, WEC, OHs service providers, Labour Inspectorate, top management etc.)? *Describe!* Does the safety manager have the general overview how OHS is functioning in the company? *Describe!* Is the safety manager competent in the following safety aspects: How is the risk assessment carried out? *Describe!* What are the results of risk assessment? *Describe!* Has the health and safety action plan been conducted? *Describe!* How to measure the risk level of occupational hazards? *Describe!* How is established internal control system and how to keep it up to date? *Describe!* How to find external experts for safety audit, expertise, counselling, occupational hygiene measurements, health check-ups, etc.? *Describe!* What is the housekeeping procedures in the plant? *Describe!*

Table 3 cont.

No.	Activity areas	Related questions
		What is the employees' risk behaviour? *Describe!* How are employees instructed and trained in OHS matters? *Describe!* How is the medical examination to the employees organized? *Describe!* How to organize the PPE procedure in the company? *Describe!* How is first aid arrangements organized? *Describe!* What are the principles to proceed with work related incidents (e.g. fatal, first aid, near miss, etc.)? *Describe!* Does the company deal with OHS issues proactively? *Describe!*
8	Working Environment Representative (WER)	Does company have adequate number of WERs elected? *Describe!* How were the WERs elected? *Describe!* Do the WERs have adequate training? *Describe!* Do the WERs have enough time to deal with OHS matters? *Yes/No* Do the WERs engage actively in solving OHS issues? *Describe!* Do the WERs engage actively in proposing proactive OHS activities? *Describe!* How are employees aware of who are their representatives? *Describe!*
9	Working Environment Council (WEC)	Is there a working environment council elected and appointed in the company? *Yes/No/NA* Does company have adequate number of WEC members (equal number of employee's representatives and employer's representatives) elected/ appointed? *Describe!* How were the WEC members elected? *Describe!* Do the WEC members have adequate training? *Describe!* Do the WEC members have enough time to deal with OHS matters? *Yes/No* Do the WEC members engage actively in solving OHS issues? *Describe!* Do the WERs engage actively in proposing proactive OHS activities? *Describe!* How are employees informed of who are WEC members? Describe! Does the WEC compose an annual activity plan for themselves? *Yes/No* How often does the WEC meet to discuss the arising OHS issues? *Describe!* Does the WEC keep records/protocols of their meetings? *Yes/No* Does WEC report their activities on regular bases to Labour Inspectorate? *Yes/No*
9	Personnel Management	Is safety manager involved if necessary in the process of personnel selection? *Yes/No* Is the safety manager involved in the arrangement of new employees during probation period? *Yes/No*
10	Interaction	Are the adequate and safe working manners regularly monitored (e.g. by supervisors, foremen, line managers, etc.)? *Describe!* Is regular and immediate feedback given to employees based on their behaviour (positive and negative)? *Describe!* Is it a common practice to involve relevant employees in the new (or redesign) workplace design process? *Describe!* Is it a common practice to involve relevant employees in the preparation or renewal of safety documents? *Describe!* Is it a common practice to involve relevant employees when purchasing new equipment or machinery? *Describe!*

Table 3 cont.

No.	Activity areas	Related questions
		Is it a common practice to favour safety observations among pears? *Describe!* Is it common practice to promote employees to make OHS suggestions? *Describe!* Are the best suggestions awarded? *Yes/No* Can the employee who made the suggestion have the possibility to implement it afterwards? *Yes/No* Are health and safety issues included in career development discussion? *Describe!* Is there a system how good health and safety behaviour is promoted and awarded? *Describe!*
11	Communication	How are employees informed about the common communication practices? *Describe!* Are these practices followed? *Yes/No* Does the management organize regular information meetings? *Yes/No* How is the communication from the employee level to the top management level arranged? *Describe!* Are there regular briefings organized for the employees? *Yes/No* What communication means are commonly used (leaflet, wallboard, intranet, email, briefing etc.)? *Describe!* Are the employees informed of how the information flow on incidents should go? *Yes/No* Are the new workers informed about the safety policy? *Describe!* How are the employees notified in changes in the safety policy? *Describe!* How do the employees get informed about the changes in the safety policy? *Describe!* Are the workers informed about the hazards connected with the changes in the production, technology and equipment? *Describe!* Are there health and safety campaigns organized in the company? *Describe!* How are the campaigns focus areas chosen (based on hazards, changes in production, actual questions, etc.)? *Describe!* Are the campaigns material up-to-date? *Yes/No* Is it possible to hire external experts in the campaigns? *Yes/No*
12	Employees' Instruction and Training	Are the health and safety training needs defined? *Yes/No* Are the records on health and safety trainings kept up-to-date? *Yes/No* Has the company defined areas that require work permits? *Yes/No/NA* Is it possible for employees to participate in the evaluation process of training needs? *Describe!* Are the employees responsible for the training and instructions defined? *Yes/No* Is the know-how of experienced workers used? *Describe!* Has the company defined all job operations and equipment which need to be covered with safety instructions? *Describe!* Is there a procedure for compiling health and safety instructions? *Yes/No* When are the health and safety instructions renewed? *Describe!* Do employees participate in the preparation process of health and safety instruction manuals? *Yes/No* Are the health and safety instruction manuals available for all the employees? *Yes/No*

Table 3 cont.

No.	Activity areas	Related questions
		Do the employees follow the health and safety procedures? *Describe!* How is the permission to the work with particularly hazardous work activities organized? *Describe!* Does the company organize additional health and safety instructions on regular basis? *Describe!*
13	Physical Work Environment - General Issues	Is the OHS legislation taken into consideration while (re) designing the workplaces? *Yes/No* Are the workplace designers trained for considering the health and safety aspects? *Yes/No* Do the designers consult with the employees? *Yes/No* Are accident and incident statistics considered while (re)designing workplaces and processes? *Yes/No* Are physical hazards considered while (re)designing workplaces and processes? *Yes/No* Is ergonomics considered while (re)designing workplaces and processes? *Yes/No*
14	Chemical risks	Does the company have a system how to handle chemical hazards? *Describe!* Are industrial hygiene measurements organized regularly? *Yes/No/NA* Does the company have instruction how safely handle and store chemicals? *Describe!* Are the employees trained how to safely handle and store chemicals? *Yes/No* Does the company have information about toxic properties of chemicals in use? *Describe!* Does the company possess the material safety datasheets for all chemicals in use? *Yes/No* Are all the packages or containers labelled appropriately? *Yes/No* How is the up-dated and/or new material safety datasheets distributed? *Describe!* Are less hazardous chemicals favoured in work processes when possible? *Describe!* Are chemicals hazards considered when preparing PPE procedure? *Describe!* Does company use appropriate PPE against chemical hazards? *Yes/No* Are the PPE regularly and correctly maintained and checked? *Yes/No*
15	Handling of Heavy Loads and Ergonomics	Are there lifting and handling aids or automation preferred when handling heavy loads? *Describe!* Does the company assess monotonous tasks? *Yes/No* Does the company assess repetitive tasks during work processes? *Yes/No* Does the company assess working position and posture (sitting, standing, leaning etc.) during work processes? *Yes/No* Which methods are in use for minimising physiological risks? *Describe!* Is there a plan or good practice example for rehabilitation from the work related physical overload diseases? *Describe!*
16	Noise	Has the company assessed the nose level? *Yes/No* Has the company considered engineer control methods to decrease noise level? *Describe!* Are the areas where the exposure limit might be exceeded, clearly

Table 3 cont.

No.	Activity areas	Related questions
		marked? *Yes/No* Is noise disturbing communication, observation, concentration? *Yes/No* Is the personnel equipped with suitable PPE? *Yes/No* Is the maintenance of PPE organized? *Yes/No*
17	Illumination	Has the company assessed illumination quantitatively (measurements)? *Yes/No* Has the company assessed illumination qualitatively (glare, shadows, uniformity, contrast, flickering etc)? *Describe!* Has the company found appropriate measures how to control illumination hazards (based on quantitative and qualitative assessment)? *Describe!* Has the company assessed illumination needs according to different employees groups (e.g. short sighted people, aging people)? *Describe!*
18	Indoor and Outdoor Climate	Has the company assessed indoor climate quantitatively (measurements)? *Yes/No* Is the temperature in the work environment in accordance with the nature of the work? *Describe!* Has the company considered how to control the indoor air flow? *Yes/No;to* control the indoor humidity? *Yes/No;* to control the indoor temperature? *Yes/No* Has the company considered what are the appropriate means for controlling outdoor abnormal weather conditions (clothing, breaks, drinks, etc.)? *Describe!*
19	Accident Hazards	Is the work environment area (floors, tables, racks etc.) clean from dust, products and raw materials? *Yes/No* Are the work-passes in clean conditions, is their surface free, are the walkways marked? *Yes/No* Are the work-passes separated from the motorways? *Yes/No* Are the devices and equipment in good condition? *Yes/No* Are the devices provided with safeguards? *Yes/No* Is the safety of motor vehicle traffic controlled? *Yes/No* Is safe travelling between home and work promoted? *Describe!*
20	Maintenance of the Machines and Equipment	Does the company arrange preventive maintenance for machines and equipment on regular basis? *Describe!* Does the plant have a maintenance plan? *Yes/No* Is the regular cleaning organized? *Yes/No* Is the maintenance of the devices and the tools in the appropriate level? *Describe!* Does the company organize and keep records on machine and/or equipment testing and/or inspection? *Describe!*
21	Emergency Accident and Major Hazards Risks	Does the company have a procedure how to act in case of the emergency? *Describe!* Does the company have the plan for the evacuation of the employees? *Describe!* Are the risks and requirements of hot work considered? Yes/No/NA Are the explosive materials and hazardous chemicals safely stored? *Yes/No* Is the extinguishing system managed by the plan? *Yes/No* Has the major hazards risk assessment carried out if needed? Yes/No/NA Is there co-operation between the Fire Safety Board and the neighbouring premises organized (incl. information exchange)? Yes/No/NA

Table 3 cont.

No.	Activity areas	Related questions
22	Psychosocial Work Conditions	Does the company have a good practice example of managing psychosocial risks? *Describe!* Has the company assessed work related stress level in the company? *Yes/No* Has the company assessed the social work environment climate? *Yes/No* Has the company assessed potential risks for employees who are working alone (in isolation)? *Describe!* Are the psychological demands considered while (re)designing work places (incl. mental under- and overload)? *Describe!* Are the results of the psychosocial issues regularly discussed openly in all levels of the company? *Describe!* What is the mentality of the top management towards harassment and work place violence? *Describe!* Is there a system for redesigning the work environment for the employees who have difficulties in coping with the work responsibilities? *Describe!* Are there employees working under extreme stress and is there a programme to follow-up their health? *Describe!*
23	Workplace Risk Assessment	Has the risk assessment been conducted according to the legislative requirements? *Yes/No* Is the risk assessment renewed regularly? *Yes/No* How often and when is the risk assessment renewed? *Describe!* Is the risk assessment conducted by the internal personnel or outsourced? *Describe!* Are the suitable methods and/or tools used when conducting OHS risk assessment (interview, checklist, observation, questionnaires etc.)? *Describe!* Are the OHS risk assessment results presented to managers? *Yes/No* Is there an OHS action plan compiled based on risk assessment? *Yes/No* Is the action plan renewed regularly? *Yes/No* Are the planned activities carried out? *Yes/No* How is the fulfilment of planned activities being monitored? *Describe!*
24	The External OH Service	How the occupational health service provider is selected (e.g. financial considerations, competence, references, quality of the service)? *Describe!* Does the OH service provider prepare an activity plan on regular basis? *Describe!* Does the OH service provider visit the company regularly to gather the information on working conditions? *Yes/No* Does the OH service provider offer the employer the feedback on regular basis? *Yes/No* Is the OH service provider participating in employee instructions or trainings? *Yes/No* How is the co-operation between the company and OH service provider organized? *Describe!*
25	Occupational Accidents and Illnesses	Does the company analyse OHS accidents and incidents causes? *Yes/No* Does the company keep statistics on OHS accidents and incidents? *Yes/No* Has the company established who has the permission to access the OHS accidents and incidents statistics? *Describe!* Is there a procedure for handling OHS accidents, incidents and work

Table 3 cont.

No.	Activity areas	Related questions
		related diseases? *Describe!* How is the management informed on accidents and incidents? *Describe!* Has the company established the process for accident investigation? *Describe!* Does the company keep the statistics on absenteeism? *Yes/No* Is the statistics (incidents, absenteeism) used for setting key performance indicators? *Yes/No*

5. CONCLUSIONS

During the study in 2014 safety interviews were conducted in 16 Estonian manufacturing companies. Processing the results of the interviews it appeared that top and middle management's health and safety knowledge in NOHSAS companies is generally lower than in OHSAS companies. During the interviews the interviewees emphasised beneficial and appropriate information they gained while answering and discussing MISHA questionnaire. They confessed that due to limited time it is complicated to be informed and regularly deal with OHS matters in SMEs. This brought a need to prepare a "training through the questionnaire" learning package in order to assist SMEs with fundamental OHS requirements according to the legislation as well as good practices and tacit knowledge. This may lead to enhancement of working conditions with minimal or moderate efforts. Nevertheless it should be kept in mind that the interviewer should be competent in OHS legislative and other requirements.

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UCZENIE SIĘ PRZEZ KWESTIONARIUSZE DOTYCZĄCE ZDROWIA I BEZPIECZEŃSTWA

Streszczenie

W ramach artykułu przeanalizowano System Zarządzania Bezpieczeństwem 16 estońskich przedsiębiorstw przy użyciu metody Misha. Analizę statystyczną przeprowadzono dla wyników dotyczących zdrowia i poziomu bezpieczeństwa w systemie OHSAS 18001 w certyfikowanych i niecertyfikowanych przedsiębiorstwach. Nowy sposób nauczania „szkolenia z kwestionariuszy" został opracowany przez kierownictwo wyższego i średniego szczebla zarządzania w celu poszerzenia wiedzy w zakresie bezpieczeństwa. Podstawę stanowił kwestionariusz MISHA. Narzędzie to pomaga MŚP spełniać wymagania dotyczące bezpieczeństwa i ochrony zdrowia zgodnie z przepisami, dobrymi praktykami oraz przy wykorzystaniu wiedzy ukrytej.

Słowa kluczowe: zarządzanie bezpieczeństwem, Factor Analysis, normalizacja Kaiser, uczenie się przez kwestionariusze