European Research Studies Journal
Volume XXIV, Issue 3, 2021

pp. 73-88

Standardized Management Systems in the Context of Active Employee Participation in Occupational Health and Safety

Submitted 24/05/21, 1st revision 22/06/21, 2nd revision 29/07/21, accepted 25/08/21

Konrad Niziołek[1], Katarzyna Boczkowska[2]

Abstract:

Purpose: *This paper seeks to conceptualize and clarify the active employee participation in health and safety (taking into account scope and depth) and develop a scale to measure it and use this indicator in practice for comparative analysis.*
Design/Methodology/Approach: *The conceptual and theoretical model for employee participation in OHS is tested on a sample of 289 respondents. The research was conducted using the PAPI (Paper & Pen Personal Interview) method. Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were used. The developed construct (characterized by an adequately high level of validity and reliability) was used to compare companies in the implemented management system. In comparative analysis was used Mann–Whitney U test.*
Findings: *It was found that it is possible to measure active participation in OHS (EFA and CFA analyzes) and that proactive indicator consists of one dimension (15 items). The comparative analyses conducted corroborate the relationship between implementing a standardized management system and a level of active participation of employees in OHS.*
Practical Implications: *The measurement and identification of determinants impacting on a high level of employee engagement in OHS will allow the management to take adequate and effective actions in respect of the safety of all organization members because employee participation in OHS is a condition necessary for the successful implementation of OHS management system and establishing high OHS culture which is correlated with a level of security in the company.*
Originality/Value: *The study presents an original approach to the problem of active participation in OSH - completes the theoretical gap. To the best of our knowledge, this is the first study to provide a comprehensive, psychometrically sound, operationally valid measure of participation in OHS. The model for active employee participation in OHS and the universal measurement scale developed and validated in this study represents a step forward towards the effective and reliable measurement of employee participation.*

Keywords: *Employee participation, standardized management systems, occupational health and safety (OHS) management.*

JEL codes: *C38, J28.*

Paper type: *Research article.*

[1]*Faculty of Production Management and Logistic Technical University of Lodz, konrad.niziolek@p.lodz.pl;*
[2]*Faculty of Production Management and Logistic Technical University of Lodz, katarzyna.boczkowska@p.lodz.pl;*

1. Introduction

Employee participation may be identified as every workplace process which enables workers to exert particular influence on their job and the conditions in which they work (Markey and Hodgkinson, 2003). Employee participation is how workers can speak about their job and problems connected with making organizational decisions within the organization (Heller *et al.,* 1998). Employee participation takes various forms and conveys different meanings (Harley *et al.,* 2005; Sirianni, 1987), including partaking of employees (Sirianni, 1987), self-management (Appelbaum *et al.,* 2000), co-deciding (Thurow, 1987), and employee voice (Dundon *et al.,* 2004). Senior management is morally obliged to grant their employees the right to express opinions and participate in decision-making as part of job-related functions (Van Buren Harry and Greenwood, 2008).

Employee participation equips workers with skills, knowledge, and resources that enable them to implement ideas for renewal, contribute to taking conscious strategic decisions, effectively put them into action through distributing power and information, and create incentives (Schaarschmidt, 2016). Employee participation reduces bias in management posts, which translates into better strategic decisions (Ketokivi and Castañer, 2004), while the effort which employees make to perform a task increases through their active involvement since their belief that something can be changed results in internal motivation (Gibbons and Henderson, 2012).

Many scholars point out that in stimulating creative and innovative types of employee behavior, it is crucial to create a working environment promoting the exchange of thoughts and autonomy of activities, thus employee participation (Hunter *et al.,* 2007). Five arguments supporting participatory management of OHS can be indicated (Gevers, 1983): (a) employee engagement in a discussion over the working environment and conditions at work; employees inform about risks and increase risk awareness; (b) there is improvement in the dialogue between employees and managers, cooperation in promoting safety and safe practices at work; (c) since employees are experts on their work, their specialist knowledge, and knowledge of finding solutions can lead to more adequate measures; (d) since decisions of an organization directly influence employees' working environment and conditions at work, they have an inalienable right to be associated with decisions affecting them; (e) equal partnership of employees and their employer, which recognizes common interests, is considered as indispensable to improve safety.

Some scholars draw attention to a specific type of abnormality as employee participation may also be manipulated by employers in pseudo-forms (Blyton and Turnbull, 2004; Busck, Ole Gunni, Knudsen, Herman, and Lind, 2010; Heller *et al.,* 1998).

Participation may take both a direct and indirect form. The direct form occurs when it is developed and implemented by the employer using internal arrangements to allow

front office employees to get engaged in work-related issues which are essential to the workers and in decision making (Appelbaum *et al.*, 2000), and can be used in informal, temporal groups or formalized and autonomous working teams (Marchington, 2009; Markey and Hodgkinson, 2003). At the same time, indirect participation occurs when employees are represented by other entities such as trade unions (Harley *et al.*, 2005) and company committees. The European Foundation for the Improvement of Living and Working Conditions views direct participation, in turn, as cases when responsibility is consulted and delegated or initiatives to do so (Geary and Sisson, 1994).

The effectiveness of employee participation and how workers affect the quality of conditions at work can be analyzed in two areas, namely, a scope of decisions that are open towards employee participation as well as the depth of participation, which is a degree to which employees and representatives are allowed to get engaged. The latter can be considered as a continuum, from "lack of engagement" to "receiving information," "joint consultations," "co-decision making," and "employee control (Blyton and Turnbull, 2004)."

Therefore, it is not a dichotomy between personnel engagement in taking decisions relating to them or lack of it. One can think about participation as a chain reflecting different access of organization members to actual decision making or the amount of influence they may exert on the outcome of an individual decision (Dachler and Wilpert, 1978). Forms of engagement (Wilkinson *et al.*, 2010) refer to whether employees can impact OHS management through information exchange, joint consultation, and co-decision making. Employee voice refers to the individual representation of working conditions and problems connected with work in a "consultation" mode since informing workers only constitutes a passive approach to participation. In contrast, more active forms include joint consultations, joint decision-making, and self-managing teams (McCabe and Lewin, 1992).

The issue related to OHS employee participation is dealt with in the occupational health and safety law. The Polish Labour Code (Ustawa, 1974) imposes several obligations connected with informing and consulting lower-level personnel on the employer. The law differentiates thus two levels of employee participation: informing and consulting.

Employee participation has been subject to several requirements under OHS standardized management systems: Occupational Health and Safety Assessment Series - OHSAS 18001 (OHSAS 18001, 2007) and its Polish equivalent PN-N 18001 (PN-N-18001, 2004) as well as ISO 45001 (ISO 45001, 2018). The standards emphasize that whether the implementation of the occupational health and safety management system is successful or not is conditional upon getting all services at all organization levels engaged, particularly the senior management. It is at the same time underlined that the successful implementation depends on ensuring a comprehensive engagement of employees at the stage of designing, implementing, and maintaining

all elements of the system. One of the critical requirements of the above standard is employee participation which states that when pursuing the adopted occupational health and safety policy, the senior management should ensure that employees and their representatives are consulted and provided with information about all OHS aspects connected with their work.

The senior management should introduce such organizational solutions to provide employees and their representatives with time and measures to actively participate in processes related to planning, implementing, maintaining, and inspecting corrective actions and preventive actions as well as any other OHS systems actions directed towards continual improvement. Another standard section specifies that the organization should consider employee involvement and consulting workers, or their representative's OHS actions in its communication process. The standard precisely indicates areas of such participation, e.g., an audit program and procedures for conducting audits should be consulted with employees or their representatives. Similar guidelines are given for identifying hazards and assessing occupational risk or examining accidents at work, occupational illnesses, and near misses.

In addition, OHS policy should be agreed with employees and oblige the organization to, among other things, develop qualifications and take account of employee roles and employee involvement in OHS actions. The OHSAS or PN-N 18001 standard thus sets three levels of employee participation: informing, consulting, and co-decision making. In our opinion, this specific trisection of employee participation forms a basis for referring to a concept proposed by other researchers (Blyton and Turnbull, 2004; Wilkinson *et al.,* 2010).

When analyzing and evaluating how effective globally implemented occupational health and safety management systems based on the OHSAS 18001 standard are, academic achievements are limited (Fernández-Muñiz *et al.,* 2012). Researchers' considerations are focused on a range of aspects, proving it is correct and adequate to implement the OHSAS standard. Advantages of implementing an occupational health and safety system in enterprises have been corroborated by research on, among other things, improving company financial performance (Halíčková *et al.,* 2016), work efficiency (Halíčková *et al.,* 2016), improving working conditions to ensure the compliance with applicable law (Yiu *et al.,* 2019), increasing involvement, practices, and promotion about the health and safety at work (Vinodkumar and Bhasi, 2011).

The assessment of how effective OHS system implementation is should be viewed with strong reservations. What constitutes main doubts raised by researchers is: firstly, a fact of having certified to OHS system may result purely from the willingness of companies to legitimize (Heras-Saizarbitoria *et al.,* 2019; Silva *et al.,* 2017) and improve their credibility/reputation (Chen *et al.,* 2009), and not from actually striving to improve practices and results in the field of health and safety at work. The system exists only as a set of formal registers and documents entirely isolated from practices and procedures used and does not leave any space for employee involvement (Frick

and Wren, 2000). Secondly, the reliability of data used in research is dubious as the data collected from third parties is more reliable than that from a given organization (Levine and Toffel, 2010) which is frequently based on success rhetoric.

Perhaps other areas for analysis need to be sought, which would decide about a successful implementation of OHSAS. As research has demonstrated, it is not sufficient to establish formal documents required under OHSAS 18001 and ISO 45001, leading to awarding a certificate for the implementation to be effective. A key role may be played by real and actual engagement of people in developing procedures and implementing exemplary practices in organizations, that is, actual participation of employees.

Research supporting the relationship between employee participation and results related to OHS is quite limited. Park and Butler (Butler and Park, 2000) proved that both an active role played by senior managers in OHS and employee inclusion in decision-making was crucial to reducing injury rates. Representative participation is associated with direct and indirect positive effects on employee health, i.e., a reduction in the number of work-related injuries and diseases (Mygind *et al.*, 2006) or better enforcement of regulations (Coutrot, 2009). Considered as the most comprehensive method for controlling Occupational Health and Safety Management Systems, the Method for Industrial Safety and Health Activity Assessment (MISHA) (Ghahramani and Salminen, 2019; Paas *et al.*, 2015) promoted by Kuusisto (2000). Research studies conducted in Estonia (Paas *et al*., 2015) with the application of MISHA in the area of participation, communication, and training showed the following:

- in the case of both OHSAS certified and non-certified companies, communication between superiors and employees forms a weakness, and superiors' intervention is often belated;
- companies quite often use the following communication channels with their employees: wallboards, emails, internal leaflets, intranets, etc.
- when it comes to regular information meetings with employees, OHSAS certified companies organize them significantly more frequently;
- employees' suggestions/comments concerning improvements in the area of health and safety at work which are collected verbally, with not written procedures in place, both certified and non-certified companies use a system of rewarding this type of employees' activity (economic measures, praising);
- it is often managers and superiors that develop OHS dossiers, employees rarely participate in these activities, in principle they are only provided with information/instructions.

In other studies, conducted in 8 companies in Kerala (Vinodkumar and Bhasi, 2011) were based on six areas, management involvement, training in safety, employee engagement, communication related to safety and feedback, safety principles, and procedures, principles of promoting safety and safety maintenance. The authors demonstrated that OHSAS 18001 certified companies reported the highest level of all

the six safety management practices and that it exceeds the level characteristic of ISO 9001 certified and non-certified companies. However, it should be emphasized that the employed research tool, likewise in the case of MISHA, contained questions referring to employee participation yet dispersed nearly in the six areas under analysis. Despite their different wording, the questions iterated in several spaces of the questionnaire. The questions asked were not specific enough, and they referred to very general issues, e.g., Is there open communication about safety? Limiting the whole scope of communication only to one question is not sufficiently conclusive to diagnose the situation.

To summarise, an issue of employee participation in the area of OHS was raised by researchers (Butler and Park, 2000; Cooper, 2015; Coutrot, 2009; Gevers, 1983; Ghahramani and Salminen, 2019; Hrenov *et al.*, 2017; Mygind *et al.*, 2006; Skeepers and Mbohwa, 2015; Skład, 2019; Vinodkumar and Bhasi, 2011) yet not as a particular systematized research problem but only as a minor element of occupational health and safety management.

Literature research shows a theoretical gap in a model description of OHS employee participation, which would take account of its scope and depth. Therefore, it should develop conceptual and theoretical frameworks for employee participation in OHS, drawing on theoretical pillars connected with a broadly understood employee participation, legal requirements, and requirements under the OHSAS or PN-N 18001 standard. This paper broadens the knowledge about employee participation in occupational health and safety. Furthermore, research studies on the level of employee participation in health and safety in the context of certified management systems were carried out, and OHSAS in particular. The rest of the article is organized as follows. First, a review of the literature with research questions and hypotheses was presented. Next, the material and methods the most important findings of empirical research are presented. The paper discusses the main conclusions, limitations, and possibilities of future research in its final section.

We formulated the following research question and hypotheses:

Q1: Is it possible to develop a scale for measurement active participation in OHS, characterized by an appropriate level of validity and reliability?

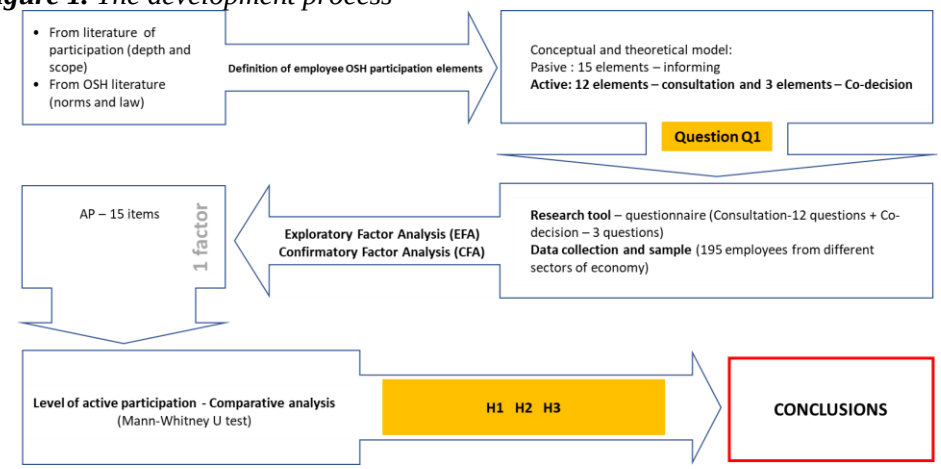
H1: In companies having certified management system OHSAS or PN-N 18001 in place, the level of active employee participation in OHS is higher than in companies without a management system.

H2: In companies having an implemented certified management system other than OHSAS or PN-N 18001 in place, the level of active employee participation in OHS is higher than in companies without a management system.

H3: In companies having certified management system OHSAS or PN-N 18001 in place, the level of active employee participation in OHS is higher than in companies with an implemented certified management system other than OHSAS or PN-N 18001.

In order to answer research questions and verify the hypotheses, we conducted the research in stages, as shown in Figure 1.

Figure 1. *The development process*



Source*: Own elaboration.*

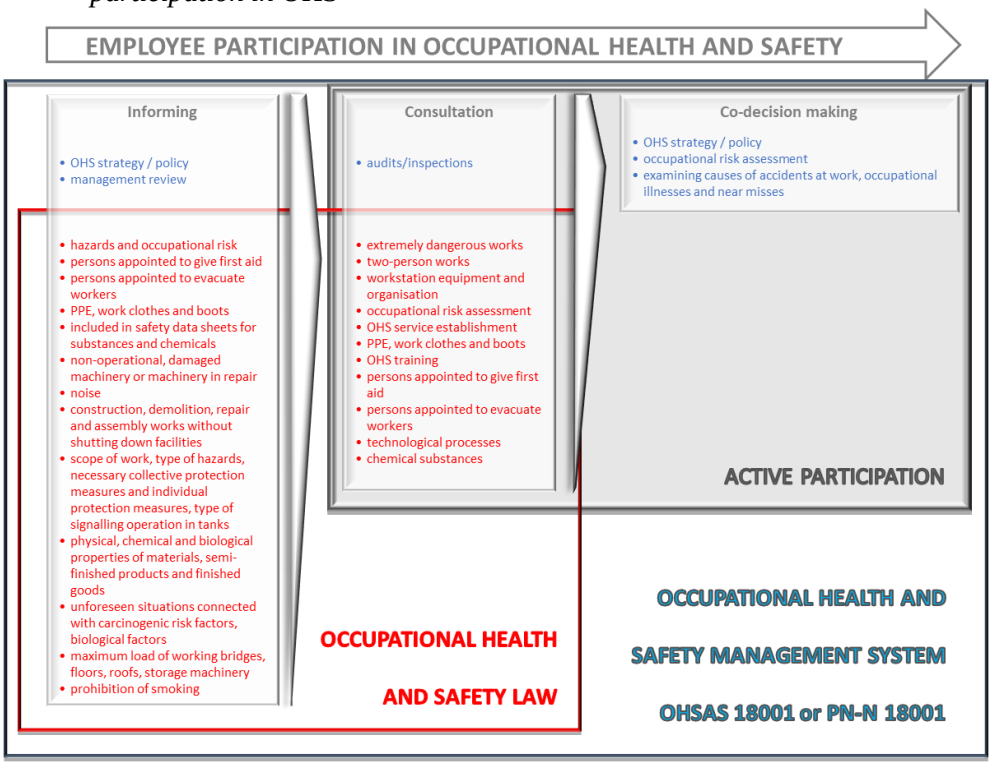
2. Literature Review

In first stage (Figure 1) based on literature review in the area of employee participation which would take account of its scope and depth and in joining requirements set forth in laws and standards, we have developed conceptual and theoretical frameworks for employee participation in OHS. Figure 2 presents coherently a scope of informing, consulting and co-decision making with the involvement of employees and specifies a scope required under laws (red colour) and additional requirements under standards with regard to OHS.

As Figure 2 illustrates, the scope of legal obligations regarding informing and consulting employees is vast, and the standard-specified ones are further inclusive of elements related to the strategy/policy, investigating accidents, and reviewing a management system. In the next stage, we used only active OHS participation elements. More profound levels of participation were taken into account because they are the most important from the point of view of employee activity.

The model formed a basis for developing a research tool for assessing a level of employee participation, i.e., the survey questionnaire. The interview questionnaire consisted of a section including basic respondent information and 15 content-related questions concerning employee consultation (12 questions) and active participation, i.e., co-decision making (3 questions).

Figure 2. *Conceptual and theoretical frameworks for research on employee participation in OHS*



Source: *Own elaboration.*

P 1. extremely dangerous works,
P 2. list of works carried out by at least two workers,
P 3. changes to work organization and workstation equipment,
P 4. introducing new medical procedures/technological processes,
P 5. introducing new chemical substances and their mixtures,
P 6. occupational risk assessment process and informing employees about risk,
P 7. process related to appointing OHS services,
P 8. appointing employees to give first aid,
P 9. appointing employees to act in case of fire and carry out evacuation,
P 10. principles of allocating PPE, work clothes and boots to employees,
P 11. employee training in OHS (programs, training forms),
P 12. programs and procedures related to OHS audits / inspections,
P 13. in developing OHS policy / strategy,
P 14. in assessing occupational risk,
P 15. in investigating causes of accidents at work, occupational illnesses and near misses.

The response format for them all was a five-degree ordinal scale from 1 to 5 was used (1 - no participation and 5 - full employee involvement (consultation, shared decision-making).

In the next stage, a minimum size of the sample was determined to be 75 observations, based on the principle that several observations should not be smaller than the 5-fold number of variables used in the model (Górniak, 1998). The study employed convenience sampling. It was conducted in October - December 2019 using the PAPI (Paper & Pen Personal Interview) method. The respondents were employees other than management staff or OHS services. We deliberately asked regular employees, because as other authors point out (Hrenov *et al.*, 2017), asking management personnel and employees of OHS services is biased in principle.

The study examined respondents from 301 enterprises representing different economic sectors, out of which 289 units were qualified for further analysis after the collected data had been verified as to its validity and completeness. The employees under study represented companies with no management system or where one or several standardized management systems were implemented (Table 1).

Table 1. *Having standardized management systems in place*

General	**The number of observations**	**Percentage share**
No system in place	137	47.4%
Minimum one management system implemented	152	52.6%
	289	**100%**
Standardized management systems	**The number of observations**	**Percentage share in 152 observations**
System OHSAS or PN-N 18001 implemented	37	24.3%
Management system implemented without OHSAS or PN-N 18001 system	115	75.7%

Source: *Own elaboration*

The most prevailing system to have been implemented in companies was Quality Management ISO 9001 (n=141, 48.8%), followed by Environmental Management ISO 14001 (n=61, 21.1%) and occupational health and safety management system PN-N or OHSAS 18001 (n=37, 12.8%). In 32 cases, employees stated that systems other than the aforementioned standardized management systems were implemented in their companies. They included: ISO/TS 16949, ISO/IEC 27001, ISO 13485, ISO 50001, ISO 27018, ISO 22301, ISO 22000, ISO/IEC 17020, AS 9100, GDP, GMP, BRC, IFS.

The data from the study were collected in an Excel spreadsheet and then summarized and analyzed quantitatively using IBM SPSS Statistic (a statistical data-processing software). In the comparative analysis, we used the non-parametric Mann–Whitney U test.

3. Results

3.1 Exploratory Factor Analysis (EFA)

We employed a rigorous process to purify and validate the measurement scale items, as advocated by Gerbing and Anderson (1988) and Hair *et al.* (2014). Next, an exploratory factor analysis (EFA) was performed to assess the properties of the initial measures (15 items in total). SPSS Statistic was used.

Exploratory factor analysis (EFA) was performed using the principal component factor analysis (PCA) and Varimax technician for factor extraction. First, the usefulness of data from the research sample for factor analysis was checked using Bartlett's sphericity test and measures of the adequacy of the Kaiser-Meyer-Olkin sample selection (KMO index). The value of the Bartlett sphericity test shows that the elements are mutually correlated and suitable for isolating common factors. Similarly, the high KMO statistic allows you to use exploratory analysis to isolate factors legitimately. EFA has identified one factor, which includes all items. For this one-dimensional scale, the value of Cronbach's alpha coefficient is high. The final VARIMAX solutions are: VE=60.83; $\alpha = 0.953$; Barlett's 3426.066 ($df = 105$, $p < 0.000$), KMO = 0.946.

3.2 Confirmatory Factor Analysis (CFA)

Based on the results of the exploratory factor analysis (EFA), a confirmatory factor analysis (CFA) was performed in SPSS Statistic across all samples (N=289). The initial measurement model tested included all 15 items suggested by the EFA. To perform the confirmatory factor analysis and verify threshold conditions, index values of correlations between variables were determined. All correlation coefficients were statistically significant and positive, which determines the use of factor analysis.

The investigation of obtained results with the confirmatory factor analysis indicates that within scale – consulting employees about OHS, one factor should be identified based on all 15 variables. Factor loading values are high and amount to respectively: for the one component from 0.828 to 0.738, explaining 60.38% of the variance. The Cronbach alpha reliability test statistics are 0.953, homogeneity maintained. Varimax solution are: Average = 39.5260 Std. = 16.6277 N valid: 289 (raw data 289) Alpha Cronbach's:953356 Standardized alpha: 953883 Average cor. between items 584716.

The performed factor analysis gives grounds to develop one synthetic measure of information contained in 15 items. The weights assigned to particular variables are similar. Therefore, it is possible to aggregate variables (items), e.g., by calculating the average value.

In summary, the confirmatory factor analysis (CFA) made it possible to develop a simple construct assessing the level of employee involvement in OHS matters based on 1 factor.

3.3 The Relationship Between the Level of Employee Participation in OHS and Certified Management Systems – Comparative Analysis

To verify all hypotheses H1-H3, one factor was compared in the identified groups using the Mann–Whitney U test. Because the normal distribution of the studied variables was not met and the groups were of different sizes, it was not possible to use solid statistical tests. Therefore, we used the non-parametric Mann–Whitney U test in the analysis. Four respondent-related criteria were applied that took account of the workers in companies which implemented management system:

- group A - No system in place n=137,
- group B1 - System OHSAS or PN-N 18001 implemented n=37,
- group B2 - Management system implemented without OHSAS or PN-N 18001 system n=115,

The first stage consisted of comparing the group of employees working in companies that did not implement any standardized management systems (group A) and those with the occupational health and safety management system in place, i.e., OHSAS or PN-N 18001 (group B1). The results are presented in Table 2.

Table 2. *The Mann-Whitney U test results - employees working in companies which did not implement any management systems (group A) and those which have the occupational health and safety management system in place: OHSAS or PN-N 18001 (group B1).*

	Mann–Whitney U test (with continuity correction); the marked results are significant (p < 0.05)								
	Rank sum Group A	Rank sum Group B1	U	Z	p	With correction	p	N valid. Group A	N valid. Group B1
Active Employee Participation OHS	10547,00	4678,00	1094,000	-5,2963	0,00000	-5,29869	0,000000	137	37

Source: *Own elaboration.*

The Mann–Whitney U test-based analysis showed that there are considerable in terms of statistics discrepancies between the group of employees working in companies with the implemented OHS standardized management system and in companies that did not implement any management systems in place. A subsequent analysis concerned employees working in companies that did not implement any standardized management systems (group A) and those with the occupational health and safety

management system in place, i.e., OHSAS or PN-N 18001 (group B2). The results are presented in Table 3.

Table 3. *The Mann-Whitney U test results - employees working in companies which did not implement any management systems (group A) and those which have a standardized management system in place other than OHSAS or PN-N 18001 (group B2)*

	Mann–Whitney U test (with continuity correction); the marked results are significant (p < 0.05)								
	Rank sum Group A	Rank sum Group B2	U	Z	p	With correction	p	N valid. Group A	N valid. Group B2
Active Employee Participation OHS	15375,00	16503,00	5922,000	-3,39209	0,000694	-3,39339	0,000690	137	115

Source: *Own elaboration.*

The results presented in Table 3 show statistically considerable discrepancies between the groups.

Given the results derived from earlier analyses, a question arises whether there are statistically significant discrepancies between the group of enterprises that have a standardized management system in place other than OHSAS or PN-N 18001 (group B2) and those which implemented OHSAS or PN-N 18001 (group B1) The outcome of this analysis is illustrated in Table 4.

Table 4. *The Mann–Whitney U test results– employees working in companies which implemented the PN-N or OHSAS 18001 management system (group B2) and those with occupational health and safety management system OHSAS or PN-N 18001 in place (group B1)*

	Mann–Whitney U test (with continuity correction); the marked results are significant (p < 0.05)								
	Rank sum Group 1	Rank sum Group 2	U	Z	p	With correction	p	N valid. Group 1	N valid. Group 2
Active Employee Participation OHS	7923,000	3705,000	1253,000	-3,75238	0,000175	-3,75352	0,000174	115	37

Source: *Own elaboration.*

The Mann-Whitney U test brought to light statistically considerable differences between the analysed groups.

4. Conclusions

When assessing the research results, four aspects should be noticed. Firstly, to answer the research, we built a conceptual model of this involvement, based on legal requirements and OHSAS standards, which account for both the depth and scope of

employee participation in OHS. Secondly, drawing on the conducted research (employees from 289 companies), we developed a scale of active employee participation based on one factor. The construct can serve as a valuable assessment tool in the area of OHS. This is the answer to the research question Q1.

The research is subject to some limitations. Owing to convenience sampling, the collected research material does not reflect a general collectiveness structure; research carried out on a larger sample could help optimize the constructed tool. The conducted research should be considered piloting and a starting point for further research on the phenomenon under study, which would benefit from further development, taking account of a lower level of participation, i.e., informing.

References:

Appelbaum, E., Bailey, T., Berg, P., Kalleberg, A.L., Bailey, T.A. 2000. Manufacturing Advantage: Why High-performance Work Systems Pay Off, IRL Cornell paperbacks. Cornell University Press.

Blyton, P., Turnbull, P. 2004. The Dynamics of Employee Relations, Management, Work and Organisations. Palgrave Macmillan, Houndmills, Basingstoke, Hampshire.

Busck, O.G., Knudsen, H., Lind, J. 2010. The Transformation of Employee Participation: Consequences for the Work Environment. Economic and Industrial Democracy, 31, 285-305.

Butler, R.J., Park, Y.S. 2000. HR Practices, Management Culture, and Corporate Downsizing: What Impacts Workplace Safety? Paper prepared for 2000 Workers' Compensation Research Group, Carlson School of Management, University of Minnesota.

Chen, C.Y., Wu, G.S., Chuang, K.J., Ma, C.M. 2009. A comparative analysis of the factors affecting the implementation of occupational health and safety management systems in the printed circuit board industry in Taiwan. Journal of Loss Prevention in the Process Industries, 22, 210-215.

Cooper, D. 2015. Effective Safety Leadership: Understanding Types & Styles That Improve Safety Performance. Professional Safety, 60, 49-53.

Coutrot, T. 2009. Le rôle des comités d'hygiène, de sécurité et des conditions de travail en France: une analyse empirique. (French). The role of health, safety and working conditions committees in France: an empirical analysis, 25.

Dachler, H.P., Wilpert, B. 1978. Conceptual Dimensions and Boundaries of Participation in Organizations: A Critical Evaluation. Administratice Science Quarterly, 23, 1-39.

Dundon, T., Wilkinson, A., Marchington, M., Ackers, P. 2004. The meanings and purpose of employee voice. The International Journal of Human Ressources, 15, 1149-1170.

Fernández-Muñiz, B., Montes-Peón, J.M., Vázquez-Ordás, C.J. 2012. Occupational risk management under the OHSAS 18001 standard: analysis of perceptions and attitudes of certified firms. Journal of Cleaner Production, 24, 36-47.

Frick, K., Wren, J. 2000. Reviewing occupational health and safety management: multiple roots, diverse perspectives and ambiguous outcomes. Systematic Occupational Health and Safefty Management Perspective an International Development, 17-42.

Geary, J., Sisson, K. 1994. Conceptualising direct participation in organizational change: The EPOC project. Dublin, Ireland: Loughlinstown House, Shankill, Co. Available at:

https://op.europa.eu/pl/publication-detail/-/publication/b48f9fa8-02de-4521-8249-f92b10f6827c.

Gerbing, D.W., Anderson, J.C. 1988. An Updated Paradigm for Scale Development Incorporating Unidimensionality and Its Assessment. Journal of Marketing Research, 25, 186-192. https://doi.org/10.1177/002224378802500207.

Gevers, J.K.M. 1983. Worker Participation in Health and Safety in the EEC: The Role of Representative Institutions. International Labour Review VO - 122 411.

Ghahramani, A., Salminen, S. 2019. Evaluating effectiveness of OHSAS 18001 on safety performance in manufacturing companies in Iran. Saferty Science, 112, 206-212.

Gibbons, R., Henderson, R. 2012. Relational Contracts and Organizational Capabilities. Organization Science, 23, 1350-1364.

Górniak, J. 1998. Factor analysis and principal component analysis. Abstracts of Ask: Research and Methods, 7, 83-102.

Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E. 2014. Multivariate Data Analysis: Pearson New International Edition, Always Learning. Pearson, Harlow, Essex.

Halíčková, K., Basovníková, M., Pavlíková, E.A. 2016. The implementation of the occupational health and safety management at work and its influence on the economic performance of the company. Acta Universitatis Bohemiae Meridionalis, 19, 50.

Harley, B., Hyman, J.D., Thompson, P. 2005. Participation and democracy at work: Essays in honour of Harvie Ramsay. Critical perspectives on work and organisations. Palgrave Macmillan, Houndmills, Basingstoke, Hampshire, England; New York, N.Y.

Heller, F., Pusic, E., Strauss, G., Wilpert, B. 1998. Organizational Participation: Myth and Reality. OUP Oxford.

Heras-Saizarbitoria, I., Boiral, O., Arana, G., Allur, E. 2019. OHSAS 18001 certification and work accidents: Shedding light on the connection. Journal of Safety Research, 68, 33-40.

Hrenov, G., Reinhold, K., Tint, P. 2017. Working environment specialist's role in improvement of safety level in Estonian enterprises. English Rural Development - International Scientific Conference, 24, 832-840.

Hunter, S., Bedell, K., Mumford, M. 2007. Climate for Creativity: A Quantitative Review. Creativity Res4arch Journal, 19, 69-90.

ISO 10018, 2012. ISO 10018:2012 Quality management - Guidelines on people involvement and competence. International Organization for Standisation.

ISO 14001, 2015. ISO 14001: 2015 Environmental management systems — Requirements with guidance for use. International Organization for Standisation.

ISO 45001, 2018. ISO 45001:2018-06 Occupational health and safety management systems - Requirements with guidance for use. International Organization for Standisation.

ISO 9001, 2015. ISO 9001:2015 9001:2015 Quality management systems — Requirements. International Organization for Standisation.

Ketokivi, M., Castañer, X. 2004. Strategic Planning as an Integrative Device. Administrative Science Quarterly, 49, 337.

Kuusisto, A. 2000. Safety management systems: Audit tools and reliability of auditing. Technikal Research Centre of Finland.

Levine, D.I., Toffel, M.W. 2010. Quality Management and Job Quality: How the ISO 9001 Standard for Quality Management Systems Affects Employees and Employers. Management Science, 56, 978. https://doi.org/10.1287/mnsc.1100.1159.

Marchington, M. 2009. Employee Voice Systems. Oxford University Press.

https://doi.org/10.1093/oxfordhb/9780199547029.003.0012.

Markey, R., Hodgkinson, A. 2003. How Employment Status Genders Access to Employee Participation in Australian Workplaces. International Employment Relations Review, 9, 111-127.

McCabe, D.M., Lewin, D. 1992. Employee Voice: A Human Resource Management Perspective. California Management Review, 34, 112-123.

Mygind, K., Borg, V., Flyvholm, M.A., Sell, L., Jepsen, K.F. 2006. A study of the implementation process of an intervention to prevent work-related skin problems in wet-work occupations. International Archives Occupational Environmental Health, 79, 66. https://doi.org/10.1007/s00420-005-0016-0.

OHSAS 18001. 2007. OHSAS 18001:2007 Occupational health and safety management systems. Requirements, British Standards Institution. London. British Standards Institution. London. Available at: https://shop.bsigroup.com/en/ProductDetail/?pid=000000000030148086&_ga=2.253548939.327271782.1618878090-910108959.1618878088&_gac=1.61923038.1618878256.Cj0KCQjw1PSDBhDbARIsAPeTqrcnxvnKCV-_bSwnzY3sLlYiBSlZ6bNIa566lmFhZVnbRnJVIsMOw8AaAv4EEALw_wcB.

Paas, Õ., Reinhold, K., Tint, P. 2015. OHSAS 18001 contribution to real and formal safety elements in safety management system in manufacturing. Agronomy Research, 13, 1260-1274.

PN-N-18001. 2004. PN-N-18001:2004. Systemy zarządzania bezpieczeństwem i higieną pracy - Wymagania. Polski Komitet Normalizacyjny.

Schaarschmidt, M. 2016. Frontline employees' participation in service innovation implementation: The role of perceived external reputation. European Management Journal, 34, 540-549.

Silva, S.A., Carvalho, H., Oliveira, M.J., Fialho, T., Guedes Soares, C., Jacinto, C. 2017. Organizational practices for learning with work accidents throughout their information cycle. Safety Scrience, 99, 102-114.

Sirianni, C. (Ed.). 1987. Worker Participation and the Politics of Reform. Temple University Press.

Skeepers, N.C., Mbohwa, C. 2015. A Study on the Leadership Behaviour, Safety Leadership and Safety Performance in the Construction Industry in South Africa. Procedia Manufacturing, 4, 10-16.

Skład, A. 2019. Assessing the impact of processes on the Occupational Safety and Health Management System's effectiveness using the fuzzy cognitive maps approach. Safety Science, 117, 71-80. https://doi.org/10.1016/j.ssci.2019.03.021.

Thurow, L.C. 1987. Democracy and Control in the Workplace, edited by Ed Davis and Russell Lansbury. (Longman Cheshire, Melbourne, 1986), Prometheus, 5, 427-429. https://doi.org/10.1080/08109028708629453.

Ustawa. 1974. Ustawa z dnia 26 czerwca 1974 r Kodeks pracy.

Van Buren, H.J., Greenwood, M. 2008. Enhancing Employee Voice: Are Voluntary Employer-Employee Partnerships Enough? Journal of Business Ethics, 81, 209. https://doi.org/10.1007/s10551-007-9489-y.

Vinodkumar, M.N., Bhasi, M. 2011. A study on the impact of management system certification on safety management. Safety Science, 49, 498-507.

Wilkinson, A., Gollan, P.J., Marchington, M., Lewin, D. 2010. The Oxford Handbook of Participation in Organizations, Oxford Handbooks. Oxford University Press, Oxford. https://doi.org/10.1093/oxfordhb/9780199207268.001.0001.

Yiu, N.S.N., Chan, D.W.M., Shan, M., Sze, N.N. 2019. Implementation of safety management system in managing construction projects: Benefits and obstacles. Safety Science, 117, 23-32.