Organizational Wisdom: The Impact of Organizational Learning on the Absorptive Capacity of an Enterprise

Agata Pierscieniak[1], Monika Stelmaszczyk[2]

Abstract:

Purpose: In this article, we analyze the concept of organizational wisdom, indicating its key elements and verifieng the relationships between them.
Design/Methodology/Approach: The study was conducted at Vive Textile Recycling Sp. z o.o in Poland. Empirical data was collected from 138 managers using the PAPI technique. Structural equation modelling (SEM) was performed to test the research hypotheses. Additionally, the significance of indirect effects was checked, using the bootstrap method.
Findings: Our findings show that organizational wisdom can, from the perspective of management sciences, be considered as a configuration of two elements: organizational learning and absorptive capacity. Our analysis shows that exploitative organizational learning plays an important role in shaping both potential and realized absorptive capacity. Exploratory organizational learning, in contrast, only affects the realized absorptive capacity.
Practical Implications: Our research in practice will allow managers to understand that for the company to successfully achieve its goals, considering the changing environment, it should show organizational wisdom. To shape the ability to acquire, assimilate, transform, and make use of valuable external knowledge, they ought to rely on procedures (processes, databases, competences, etc.) that they know well. Their recent procedures or processes will only be capable of influencing their ability to transform and apply external knowledge.
Originality/Value: The value of our research is drawing attention to the categories of organizational wisdom, which is not often analyzed in management sciences. The originality of our considerations consists in our attempt to describe the phenomenon not only by indicating its main elements, but also by establishing the relationship between them.

Keywords: Organizational wisdom, organizational learning, absorptive capacity, SEM.

JEL codes: D18, D83, E22, L10, L20, L81, M10, M12, O34.

Paper type: Research study.

[1]*Gdańsk University of Technology, Poland, Faculty of Management and Economics*
ORCID https://orcid.org/0000-0002-1724-6766 e-mail: agata.pierscieniak@gmail.com;
[2]*Jan Kochanovski University in Kielce, Poland, Department of Management,*
ORCID https://orcid.org/0000-0002-7055-0193e-mail: m.stelmaszczyk@ujk.edu.pl;

1. Introduction

Contemporary companies operating in accordance with market guidelines have had to implement their strategy in changing environments. Civilizational development that requires the need to protect the natural environment, that is undergoing heightened degradation due to human activity, and such crises as Covid-19 has resulted in routines becoming projects that lead to innovations, amongst others. The process of creating innovation requires, besides external support (e.g. motivating state policy), first and foremost, appropriate knowledge being accumulated in organizational memory. The process of its collection is identified in literature as organizational learning (Argyris and Schön, 1996; Stelmaszczyk, 2016; Van de Ven *et al.,* 2019) alone, considered statically, is not sufficient to generate innovation. Mechanisms are necessary to activate it and enable its application in operational processes and strategic management (Lis and Rozkwitalska, 2020).

Variability, uncertainty, complexity, and ambiguity of the environment (model VUCA; Jamil and Humphries-Kil, 2017) coerces the anticipation, forecasting, simplification and subjective interpretation of economic phenomena. Therefore, enterprises should regularly verify the extent to which knowledge stored in their organizational memory requires updating, extension or supplementation. The next step is to identify potential external sources of new knowledge, acquire and combine it with knowledge already accumulated in organizational memory and subsequently put into practice to achieve the intended goals. This dynamic process was defined by Cohen and Levinthal (1990) as absorptive capacity. It enables the organization to function, i.e., to make decisions using the acquired knowledge, in contextual situations. The essence of such activity is the transformation of knowledge into action, which serves as an indicator of organizational wisdom. In treating organizational wisdom pragmatically, we accept the researchers' view that it is an important element in innovative processes.

To conclude the above considerations, we put forward the thesis that organizational wisdom (IA), viewed from the perspective of management sciences, consists of two variables - organizational learning (OL) and absorptive capacity (AC), that are related to each other with statistically significant dependencies. We will use scoping review methodology (Munn *et al.,* 2018) to identify the main elements of organizational wisdom. We will verify relations existing between them by analyzing the data obtained from Vive Textile Recycling Sp. z o.o, using the PAPI technique in accordance with the SEM method.

The article consists of four parts in addition to the introduction. The second part recognizes organizational wisdom by identifying its key elements that have been defined. The next part is the research methodology, presenting the hypotheses and research model. The final part presents the research results and conclusions,

considering the pragmatic significance of the obtained results for the analyzed company.

2. Key Elements of Organizational Wisdom

The achievements of philosophers concerning the definition of wisdom in the cognitive context, analyzed mainly in psychological literature, drew researchers' attention to existential and cognitive elements (Rooney and McKenna, 2008; Izak, 2013). Knowledge and action have, however, remained the key elements of wisdom (Akgün and Kırçovalı, 2015). Kitchener and Brenner (1990), for example, pointed out that wisdom represents the awareness of an unknown event and the application of knowledge for problem solving and judgments in real-world situations. On the other hand, Jashapara (2004) emphasized that wisdom is the ability to act critically or practically in each situation. Achievements in management sciences have, besides individual wisdom interpreted as managerial (Malan and Kriger 1998), expounded the collective wisdom of the entire organization. Bierly, Kessler and Christensen (2000) contributed significantly to its definition, interpreting it as the ability to effectively select and apply appropriate knowledge in each situation, i.e., action. According to their research, the assessment, selection and use of knowledge resources for a specific context was referred to as organizational wisdom. A short review of the literature, from management science perspective, has led to the conclusion that its key elements are knowledge possessed by the organization and the mechanism of its application in decision-making processes.

Both organizational skills and information (documents, instructions, patents, certificates, etc.) used in achieving set goals constitute organizational knowledge. An organization accumulates its knowledge in organizational memory, i.e. it carries out organizational learning. Whenever an organization learns something, it means that it will modify or change (possibly introduce a new) a procedure, process, policy, database, etc., (Chiva *et al.,* 2014). Sun and Anderson (2010) treat organizational learning as a two-dimensional category. The first dimension concerns the knowledge that the company consolidates or updates in its daily activities, the so-called exploitative organizational learning (EdOL). The second dimension relates to the accumulation of new knowledge in the organizational memory that is necessary to survive in a changing environment, e.g. adapting to maintaining social distancing in COVID-19 era, etc. Sun and Anderson (2010) define such knowledge as exploratory and the process of its accumulation by exploratory learning of the organization (EnOL). Thanks to these two types of organizational learning, the company accumulates knowledge in its organizational memory. This knowledge forms the basis (necessary condition) for organizational wisdom.

However, knowledge itself is not wisdom. There is a need for a mechanism that activates the knowledge held by the enterprise to skillfully use it to absorb valuable
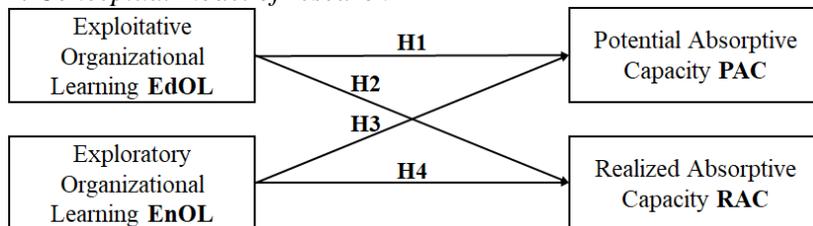
knowledge from external sources. Such a mechanism is referred to as absorptive capacity. It is presented in literature as the ability to acquire and assimilate external knowledge (i.e. potential absorptive capacity, PAC), to transform and use the knowledge to achieve goals (i.e. realized absorptive capacity, RAC) (Zahra and George, 2002). Acquisition is about acquiring valuable knowledge from external sources. Assimilation boils down, getting to know it, understanding it and mastering it. In turn, transformation is the combination of basic knowledge (stored in the organizational memory) with newly acquired external knowledge, while exploitation should be understood as putting it to practice use (Stelmaszczyk and Jarubas, 2019).

3. Research Methodology

3.1 Research Hypotheses

Taking into account the adopted assumptions about the two key elements of organizational wisdom, our analysis will concern the identification of relationships existing between them (Figure 1).

Figure 1. *Conceptual model of research*

Source: Own elaboration.

For the purposes of empirical research, dependent and independent variables have been distinguished. The independent variables are exploratory organizational learning and exploitative organizational learning, while the dependent variables are potential and realized absorptive capacity. Four research hypotheses were formulated:

H_1: *There is a positive relationship between exploitative organizational learning and potential absorptive capacity*
H_2: *There is a positive relationship between exploitative organizational learning and realized absorptive capacity*
H_3: *There is a positive relationship between exploratory organizational learning and potential absorptive capacity*
H_4: *There is a positive relationship between exploratory organizational learning realized absorptive capacity*

At a later stage of the research cognizance was given to the fact that each of the dimensions of the absorptive capacity consists of two sub-dimensions, namely that potential absorptive capacity consists of acquisition and assimilation, while realized absorptive capacity consists of transformation and exploitation (Zahra and George, 2002; Stelmaszczyk and Jarubas, 2019).

3.2 Sample and Data Collection

The object of research is the VIVE Textile Recycling Sp. z o.o company. It deals with the recycling of textiles, wholesale, and retail sale of sorted and unsorted used clothing, as well as the sale of raw materials processed into industrial wipers. VIVE Textile Recycling Sp. z o.o. is a leader in the textile recycling industry in Poland. It is the largest importer of second-hand clothes from Western Europe into the country. It has a network of 34 brand stores dealing in this category of clothing in Poland. In turn, its products are exported to around 80 countries (Western Europe, the Commonwealth of Independent States, Asia, Africa).

To collect empirical data, a survey method that included the technique PAPI (*Paper and Pen Personal Interview*) was used. The research tool was a questionnaire. It uses a seven-point Likert scale, ranging from (1) "definitely NO" to (7) "definitely YES". The study was conducted between May and June 2019. All VIVE Textile Recycling Sp. z o.o managerial staff, 138 in all, were invited to participate in the survey. 78 respondents who took part in the study were the subject of further analyses. The response rate was 57%. Potential and realized absorptive capacity was measured using the scale developed by Flatten *et al.* (2011). The scale by Atuahene-Gima and Murray (2007) was adopted to measure exploitative and exploratory organizational learning. IBM SPSS Statistics, version 25 and AMOS were used to conduct statistical analyses. The SEM (structural equation modelling) analysis of the model created on the basis of the theoretical assumptions was performed using the maximum likelihood method. In this way, the cause and effect relationships between observable and unobservable variables were measured and tested. Then, the significance of indirect effects was checked using the bootstrapping method. For the purposes of interpreting the analyzes, the significance level *p* was assumed to be 0.05.

3.3 Basic Descriptive Statistics for Quantitative Variables

Basic descriptive statistics were calculated at the outset. They were made to present the most important information about the variables covered in the study and the collected statistical data. The K-S test was also carried out to check the normality of the distribution of individual variables, measured on the quantitative scale. The result of the K-S test indicates that the distributions of all variables are slightly different from normal. Nevertheless, the value of the skewness of the distribution for each variable (except assimilation) did not exceed the 0.8 threshold. It is, thus

assumed that the deviation is not significant and that the distribution of individual variables is relatively symmetric in relation to the mean (George and Mallery, 2010). A summary of values for the most popular descriptive statistics and the K-S distribution normality test is presented in Table 1.

***Table 1**. Descriptive statistics, K-S test, Cronbach's alpha scores*

	M	*Me*	*SD*	*Sk.*	*Kurt.*	*Min.*	*Max.*	*K-S*	*p*	*α*
EdOL	27.96	27.0	4.31	-0.19	0.09	16.0	35.0	0.11	0.014	0.841
EnOL	19.92	19.0	3.91	0.18	0.74	8.0	28.0	0.15	<0.001	0.861
PAC	35.85	37.0	5.92	-0.79	0.88	18.0	46.0	0.14	0.001	0.707
acqusition	14.95	15.0	3.17	-0.22	0.19	6.0	21.0	0.12	0.009	0.738
assimilation	20.90	22.0	4.73	-0.97	0.87	5.0	28.0	0.10	0.047	0.815
RAC	36.49	38.0	6.46	-0.48	-0.42	21.0	49.0	0.15	<0.001	0.866
transformation	19.90	20.0	4.20	-0.52	0.06	9.0	28.0	0.13	0.004	0.839
exploitation	16.59	17.0	2.97	-0.16	-1.04	10.0	21.0	0.11	0.024	0.784

Note: *M* – Mean; *Me* – Median; *SD* – Standard Deviation; *Sk.* – Skewness, *Kurt.* – Kurtosis; *Min.* and *Max.* – Lowest and Highest Distribution Value; K-S – Kolmogorov-Smirnov test result; p – Significance; *α* – Cronbach's alpha.
Source: *Own study.*

The reliability of tools measuring individual variables was also checked. For this purpose, the Cronbach's alpha (α) coefficient was used. All the coefficients assumed values greater than the minimum threshold of 0.7. (table 1) thus confirming the reliability of the tools used.

4. Study Results – Structural Equation Modelling (SEM)

In the next step of the analysis, SEM analysis was performed for the model created on the basis of the theoretical assumptions. The use of this statistical method was dictated by the desire to verify the cause and effect relationships between the variables included in the conceptual research model (Figure 1). Consequently, the construction of a structural model was started, which would allow for testing of the hypotheses. The study assumed that the variables forming the conceptual research model take on the nature of latent variables (hidden, unobservable) which are not directly measurable as well as control variables (explicit, observable) that area directly measurable.

Structural modeling takes into account two hidden endogenous variables, which are potential absorptive capacity and realized absorptive capacity. The next are the four explicit endogenous variables: acquisition, assimilation, transformation, and exploitation. The endogenous nature of the variables is manifested in the fact that their variability is explained by the variability of other variables contained in the model. Exploratory organizational learning and exploitative organizational learning have been treated as explicit exogenous variables. They are not explained by other

variables included in the structural model. They are independent, which means that their variability is determined by causes outside the model.
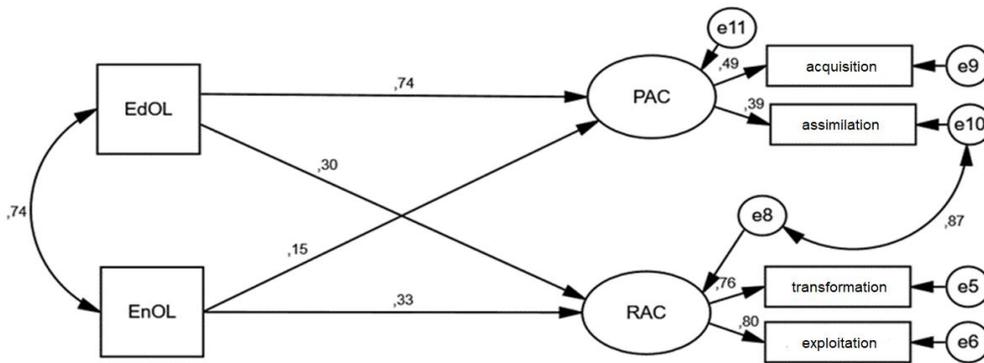
At the start of the analysis of the structural equation modelling, it was found that the multivariate distribution in the tested model is a normal distribution (kurtosis = 3.68; C.R. = 1.66). This formed the basis for the use of estimators in SEM (Staniec, 2018, s. 68). Thus, the ML maximum likelihood estimation was used for further analyses (*Maximum Likelihood*).

Then, it was checked whether the model fits the data. The result of the chi^2 test turned out to be statistically insignificant [$\chi^2(6) = 4.10$; $p = 0.535$]. This means that there is no discrepancy between the observed covariance matrix and the matrix implied by the model. Thus, the obtained chi^2 value proves a good fit of the model to the data. Likewise, other indicators show a very good fit of the data to the structural equation model. The RMSEA index, the mean square root of the approximation error, indicates an excellent fit of the model while taking into account its estimation parameters. The acceptable limit for this indicator is at level 0.08, assuming that the lower its value, the better the fit. In the analyzed model, the RMSEA index was less than 0.01. Moreover, the standardized value of RMR is 0.048. Goodness of fit indicator GFI (GFI = 0.982) indicates a satisfactory fit of the data, as does the value of the adjusted goodness of fit index (AGFI = 0.926). The comparative match index (CFI > 0,999) takes a satisfactory value, as does the normalized model fit index (NFI = 0.980). The values of the fit measures therefore indicate a very good fit of the model.

The results of structural modeling (presented in Figure 2 and in Table 2) show that in three out of four cases considered there are no grounds to reject the hypotheses:

H_1 *assuming a positive impact of exploitative organizational learning on the potential absorptive capacity can be considered positively tested. In the model, a statistically significant (p = 0.020), positive and very strong influence (β = 0.74) of the independent variable was observed.*

H_2, *determining the positive impact of exploitative organizational learning on the realized absorption capacity can also be considered as positively tested. There is a statistically significant effect (p = 0.043), positive, but weak (β = 0.30)*

H_3, *assuming a positive impact of exploratory learning on the potential absorptive capacity should be rejected. The identified directional relationship is statistically insignificant (p = 0.561). However, removing it from the model would slightly decrease the values of the fit indicators. Therefore, it was decided to retain this dependency.*

H_4, *determining the positive impact of exploratory learning on the realized absorptive capacity can be considered as positively tested. The model shows a statistically significant (p = 0.016), positive, moderately strong (β = 0.33) effect.*

Figure 2. *Structural model of organizational learning and absorptive capacity*

Source: *Own study.*

Table 2. *Regression coefficients for the SEM model*

			B	*SE*	*β*	*C.R.*	*p*
EdOL	→	PAC	0.32	0.14	0.74	2.32	0.020
EdOL	→	RAC	0.22	0.11	0.30	2.03	0.043
EnOL	→	PAC	0.07	0.12	0.15	0.58	0.561
EnOL	→	RAC	0.27	0.11	0.33	2.41	0.016
PAC	→	acqusition	0.84	0.33	0.49	2.52	0.012
PAC	→	assimilation	1.00		0.39		
RAC	→	transformation	1.00		0.76		
RAC	→	exploitation	0.74	0.11	0.80	7.06	<0.001

Note: *B – non-standardized regression coefficient, SE – standard error; β – standardized regression coefficient; C.R. – critical ratio, p – significance level.*
Source: *Own study.*

Following the testing of structural model, the research hypotheses was empirically proven. The obtained results prompted the widening of the analytical research. This time, it was assumed the existence of indirect directional relationship between exploitative and exploratory organizational learning and acquisition, assimilation, transformation and exploitation (excluding the superior constructs, which represent potential and actual absorption capacity). In order to establish the significance of these relationships, a statistical analysis was conducted using the bootstrapping method (for a sample of 1000). The results are presented in Table 3.

The identification of indirect relationships between exploitative and exploratory organizational learning and acquisition, assimilation, transformation and exploitation (omitting superior constructs) allows for the formulation of the following conclusions. First, the reason for the statistically insignificant impact of exploratory organizational learning on the potential absorptive capacity are statistically insignificant relationships between this category of learning and acquisition and assimilation.

Table 3. *Indirect effects*

		Effect	Boot SE	95% CL (B)	
				LL	UL
EdOL	acqusition	0.27	0.12	0.10	0.48
	assimilation	0.32	0.14	0.10	0.54
	transformation	0.22	0.1	0.07	0.40
	exploitation	0.17	0.08	0.05	0.32
EnOL	acqusition	0.06	0,11	-0.14	0.22
	assimilation	0.07	0.13	-0.10	0.33
	transformation	0.27	0.11	0.08	0.45
	exploitation	0.20	0.08	0.06	0.32

Note: *Effect – values of indirect effects, Boot SE – standard error, LL and UL - lower and upper limits of the confidence interval.*
Source: *Own study.*

The obtained results again confirm the need to reject the H3 hypothesis. Secondly, all other indirect relationships between the variables are positive and statistically significant, thus confirming the conclusion that there are no grounds for rejecting the H1, H2 and H4 hypotheses.To sum up, the obtained results of the conducted analyzes indicate the necessity to reject the H3 hypothesis. They also do not provide grounds for rejecting the hypotheses H1, H2 and H4.

5. Conclusions

The theoretical implication of our research is to define organizational wisdom through organizational learning and the absorptive capacity of the enterprise. The wisdom studied is revealed firstly during the deliberate distinction between exploitative and exploratory learning of the organization. Exploitative learning consists in updating or modifying knowledge already stored in the organizational memory. Its effect may be, for example, improvement of the procedure used so far. Exploratory organizational learning concerns the recording of completely new knowledge in the organizational memory, as a result of which a completely new procedure may be introduced, which the company did not yet have.

The second aspect of organizational wisdom is the activation of the absorptive capacity of the enterprise, which consists in giving organizational learning the right direction of impact. It was observed that exploitative organizational learning is very powerful and is very strongly related to the potential absorptive capacity. It also affects the realized absorptive capacity with a moderate force. In turn, exploratory organizational learning only affects the realized absorptive capacity, while not affecting its potential dimension. It follows that the examined enterprise will acquire more valuable knowledge from external sources and subject it to assimilation (i.e. understanding), if it is based on procedures (processes, databases, competences, etc.) that it knows well and has been using for a long time. Procedures and processes that

have already been stored in the organizational memory, but which the company has only just started to put into action or only recently, do not play any role in shaping the company's ability to acquire new external knowledge. Thus, they should not be used to activate any potential absorptive capacity. In turn, any increase in organizational learning (both in the area of exploitation and exploration) activates the realized absorptive capacity. Both the already well-known procedures and processes, as well as those being put to use only of recent, will be needed to stimulate the transformation of knowledge acquired from external sources and hence to apply it achieving set goals.

The topic covered in the research is novel and has immense development potential. The next stage will be to develop a model of organizational wisdom, in search for further relationships between its elements and to develop guidelines for the methodology of its measurement. In the future, organizational wisdom may become one of the key features of a modern organization, which will be diagnosed and analyzed in the context of the company's value, competitive analysis, etc.

References:

Akgün, A., Kırçovalı, S.Y. 2015. Organizational wisdom and its impact on firm innovation and performance. Doğuş Üniversitesi Dergisi, 16(2), 193-202. doi:10.31671/dogus.2018.70.

Argyris, Ch., Schön, D.A. 1996. Organizational learning II: Theory, methods, and practice. Reading Mass, Addison-Wesley.

Atuahene-Gima, K., Murray, J.Y. 2007. Exploratory and exploitative learning in new product development: A social capital perspective on new technology ventures in China. Journal of International Marketing, 15(2), 1-29. doi:10.1509/jimk.15.2.1.

Chiva R., Ghauri P., Alegre J. 2014. Organizational learning, innovation, and internationalization: A complex system model. British Journal of Management, 25(4), 687-705. doi:10.1111/1467-8551.12026.

Cohen, W.M., Levinthal, D.A. 1990. Absorptive capacity: A new perspective on learning and innovation. Administrative Science Quarterly, 35(1), 128-152. doi: 10.2307/2393553.

De Meyer, A. 2006. Innovation and organizational wisdom. Handbook of organizational and managerial wisdom, 261-273.

Flatten, T.C., Engelen, A., Zahra, S.A., Brettel, M. 2011. A measure of absorptive capacity: Scale development and validation. European Management Journal, 29(2), 98-116. doi:10.1016/j.emj.2010.11.00.

George, D., Mallery, M. 2010. SPSS for Windows step by step: A simple guide and reference. Pearson, Boston.

Izak, M. 2013. The foolishness of wisdom: Towards an inclusive approach to wisdom in organization. Scandinavian Journal of Management, 29(1), 108-115. doi:10.1016/j.scaman.2012.07.002.

Jamil, N., Humphries-Kil, M. 2017. Living and leading in a VUCA world: Response-Ability and people of faith. In Managing VUCA through integrative self-management, 65-79. Springer, Cham.

Jashapara, A. 2004. Knowledge management: An integrated approach. FT Prentice Hall.

Kitchener, K.S., Brenner, H.G. 1990. Wisdom and reflective judgment: Knowing in the face of uncertainty. R. Sternberg, (ed.), Wisdom: Its nature, origins, and development, 212-229. New York, Cambridge.

Lis, A.M., Rozkwitalska, M. 2020. Technological capability dynamics through cluster organizations. Baltic Journal of Management, 15(4), 587-606. doi:10.1108/BJM-02-2020-0046

Malan, L.C., Kriger, M.P. 1998. Making sense of managerial wisdom. Journal of Management Inquiry, 7(3), 242-251. doi:10.1177/105649269873006.

Morgan, G. 1980. Paradigms, metaphors, and puzzle solving in organization theory. Administrative Science Quarterly, 25(4), 605-622. doi:10.2307/2392283.

Mouritsen, J., Hansen, A., Hansen, C.Ø. 2001. Inter-organizational controls and organizational competencies: episodes around target cost management/functional analysis and open book accounting. Management Accounting Research, 12(2), 221-244. doi:10.1006/mare.2001.0160.

Munn, Z., Peters, M.D., Stern, C., Tufanaru, C., McArthur, A., Aromataris, E. 2018. Systematic review or scoping review? Guidance for authors when choosing between a systematic or scoping review approach. BMC Medical Research Methodology, 18(1), N.PAG. doi:10.1186/s12874-018-0611-x.

Rooney, D., Mckenna, B. 2008. Wisdom in public administration: Looking for sociology of wise practice. Public Administration Review, 68(4), 709-721. doi:10.1111/j.1540-6210.2008.00909.x.

Spiller, C., Pio E., Erakovic L.L., Henare, M. 2011, Wise up: Creating organizational wisdom through an ethic of Kaitiakitanga. Journal of Business Ethics, 104(2), 223-235. doi:10.1007/s10551-011-0905-y.

Staniec, I. 2018. Modelowanie równań strukturalnych w naukach o zarządzaniu. Organizacja i Kierowanie, 2/2018(181), 65-77.

Stelmaszczyk, M. 2016. Relationship between individual and organizational learning: Mediating role of team learning. Journal of Economics & Management, 26(4), 107-127. doi:10.22367/jem.2016.26.06.

Stelmaszczyk, M., Jarubas, A. 2019. Podejście ambidexterity w odniesieniu do wymiany wiedzy i ochrony wiedzy w kontekście zdolności absorpcyjnej. E-Mentor, 2(79), 68-78.

Sun, P.Y., Anderson, M.H. 2010. An examination of the relationship between absorptive capacity and organizational learning, and a proposed integration. International Journal of Management Reviews, 12(2), 130-150. doi:10.1111/j.1468-2370.2008.00256.x.

Van de Ven, A., Bechara, J.P., Sun, K. 2019. How outcome agreement and power balance among parties influence processes of organizational learning and nonlearning. Journal of Management, 45(3), 1252-1283. doi:10.1177/0149206317698021.

Wilensky, H.L. 2015. Organizational intelligence: Knowledge and policy in government and industry. Quid Pro Books, New Orleans.

Zahra, S.A., George, G. 2002. Absorptive capacity: A review, reconceptualization, and extension. Academy of Management Review, 27(2), 185-203. doi: 10.5465/AMR.2002.6587995.