

Empirical Paper

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The impact of organizational learning on Polish SME market performance

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Abstract: The main purpose of this paper is to analyze impact of organizational learning (OL) on Polish small- or medium-sized enterprise (SME) performance. Results are based on interviews with owners and managers from two samples of Polish small- and medium-sized firms: a “pre-COVID-19” sample (the survey was conducted during May–July 2019) and a “COVID-19” sample (the survey was conducted during December 2020–January 2021). The results based on the “pre-COVID-19” sample show partial support for the hypothesis about a positive relationship between market performance and OL for Polish SMEs. Two out of three measures of OL, i.e., the diversity of information sources and the commitment to learning, showed positive relationship with two aspects of market performance, i.e., the sales dynamics and the self-assessed success as compared with that of competitors. None of the OL measures have been correlated with the financial results. For the “COVID-19” sample, commitment to learning showed very weak positive correlations with both financial results and sales dynamics. These relationships were not confirmed when other firms’ characteristics had been included.

Keywords: market performance, organizational learning, SME strategy

JEL Classification: D80, L20, M53

1 Introduction

In a global, complex, and turbulent environment, knowledge is an essential reliable source of gaining competitive advantage. Modern conditions of aggressive competition, ambiguous and volatile environmental factors, and sophisticated information technology and artificial intelligence (AI) have led to growing importance of knowledge economy and have changed the perception of effective organizational learning (OL) in a firm. Through the process of continuous employee training and development, the efficient management of human resources provides constant innovation and creates conditions for mutual knowledge exchange and proactive behavior, leading to improvement of a firm’s competitive position in the market. The SME sector is not an exception. The concept of OL refers to multiple disciplines in both the natural and social sciences, including psychology, sociology, and anthropology [Sun, 2003]. To offer a clear foundation, this paper begins with the definitions characterizing the nature of OL and rationales justifying its existence and growing importance for a firm’s performance.

The basic concept of OL was first introduced by Senge [1990]. One of the early definitions coined by Marsick [1994] perceived OL as a process of “*coordinated systems change, with mechanisms built in for individuals and groups to access, build and use organizational memory, structure and culture to develop long-term organizational capacity.*” According to Sinkula et al. [1997] OL is a dynamic process that involves three major elements: commitment to learning, shared vision, and open mindedness.

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OL can also be characterized as an intricate three-stage process consisting of knowledge acquisition, dissemination, and shared implementation [Dale, 1994]

Argyris and Schon [1996] indicated two essential conditions for efficient process of OL: first, when an organization achieves what is intended, and second, when mismatch between intentions and outcomes is identified and corrected. They distinguished between single-loop and double-loop learning. Single-loop learning is described as an adaptive learning or incremental learning that is limited to correction of deviations from the norm by introduction of small adjustments without challenging beliefs or assumptions. As suggested by Argyris [1992], organizations where single-loop learning is the norm, “governing variables” that they expect to achieve in terms of targets and standards are indicated. The controlling process is carried out through monitoring and review of achievements and is followed by corrective actions, thus completing the loop. In contrast, double-loop learning is associated “*with radical change, which might involve a major change in strategic direction, possibly linked to replacement of senior personnel, and wholesale revision of systems*” [Argyris, 1992, p. 716]. The basic assumption indicates the superiority of double-loop learning, except some (rare) situations when single-loop learning may be more relevant [Easterby-Smith and Araujo, 1999].

The main principles of OL were coined by Harrison [1997] who pointed out to (a) the need for a powerful and coherent vision of the organization to be communicated, (b) the need to develop a strategy in the context of a vision that is open ended and unambiguous, (c) promotion of lateral thinking and training of employees, as well as knowledge-creating activities, (d) frequent dialog within the framework of vision and firm’s goals, and (e) development of a conducive learning and innovation climate. As an important remark, he indicated that the concept of OL should not be confused with learning organization which is an idea that points out to the use of specific diagnostic instruments that can help to identify, promote, and evaluate the quality of the learning processes inside the firm.

An overview of the literature on a diverse theoretical OL approach has been presented in Bontis et al. [2002]. More recent research studies define OL as “*the process through which organizations change or modify their mental models, rules, processes or knowledge, maintaining or improving their performance*” [Chiva et al., 2014] and point out that the dynamic process of knowledge creation is a critical OL component [Loermans, 2002; Cheng et al., 2014; Real et al., 2014]. As a result, OL is perceived as a fundamental for gaining a sustainable competitive advantage and a key factor in the enhancement of organizational effectiveness [Bontis et al., 2002; Brockmand and Morgan, 2003; Easterby-Smith et al. 2000]. Other researchers [Tippins and Sohi, 2003; Keskin, 2006; Ussahawanitchakit, 2008] also provide evidence of a positive relationship between OL and firm performance. The findings obtained by Darroch and McNaughton [2003], Oh [2019], Maiga [2015], and Altinay et al. [2016] confirm that the whole process of OL produces better firm performance. Thus, a majority of researchers stressed that OL will be a crucial determinant for corporate survival and development.

Michna [2009, p. 356] indicated that: “*there is no theory of organizational learning which would take into account the specificity of small- or medium-size enterprise (SME) management in connection with the corporate performance. Because not enough attention has been given to the specific character of these processes in SMEs and the relationship between the processes and SMEs performance so far .*” In her research focused on 211 enterprises from Polish SME sector, she showed empirically a relationship between OL and organizational performance. In practice, it implicates that organizations with a higher level of OL achieve higher performance.

It should be noted that in the Polish economy, the SME sector plays a significant role. It produces 50% of GDP, gives employment to 7 million people, and accounts for 99.8% of all Polish enterprises [PARP, 2020]. But still, it has a great potential to grow as the number of Polish SMEs per capita and average contribution to the GDP growth is lower than the EU average (58%).

Important findings by Adian et al. [2020] explicitly indicate that SMEs are by above 8% more likely to temporarily shut down due to COVID-19 and other environmental turbulences than larger firms, across all countries and sectors in the sample. SMEs can also have fewer tools to respond to pandemic threats and volatility, uncertainty, complexity, ambiguity (VUCA) environmental factors; so, the responsive strategy and OL might be perceived as essential for their survival. According to Polski Instytut Ekonomiczny (PIE)

[2022], 64% of Polish entrepreneurs indicated that environmental uncertainty and growing risk of economic activity would induce high motivation for managers to organize and pay for human capital training to gain new competences. Surprisingly, the same report indicates that 72% of Polish entrepreneurs didn't invest in 2021 or didn't even plan to invest in human capital in a form of training in forthcoming 2022.

The main purpose of this article is to fill in the gap in the current knowledge of OL in Polish SMEs operating in turbulent, pandemic conditions and to make recommendations for their strategic and entrepreneurial market orientation.

2 Research method

First, the characteristics of two research samples are presented, and the formulation of hypothesis is explained.

Our findings are based on a survey conducted among company's owners and managers from two samples of Polish SMEs: a "pre-COVID-19" sample (first sample) and a "COVID-19" sample (second sample).

The data in the first sample were collected¹ during May–July 2019 through questionnaires sent to a representative sample of Polish SMEs established after 2004. Random selection was made within two strata of non-exporters and exporters with exports being at least 25% of their sales and two strata of small- and medium-sized companies. The data collection was conducted through the internet questionnaire (CAWI) and telephone interviews (CATI). The total sample size accounted for 240 firms randomly selected from the database of 2,969 Polish SMEs. The share of exporters vs. non-exporters in the sample is 50% vs. 50%. The share of medium-sized vs. small-sized enterprises is 33.3% vs. 67.7%.

The data in the second sample were collected² during December 2020–January 2021 through questionnaires sent to a representative sample of Polish SMEs established after 1995. Random selection was made within two strata of small- and medium-sized companies and two strata of non-exporters and exporters with at least 15% of their sales being sold abroad. Data were obtained through the internet questionnaire (CAWI) and telephone interviews (CATI). The total sample size was 219 firms selected from the database of 1,395 Polish SMEs that met the sampling criteria. The share of exporters is 49.8%, and the share of non-exporters in the sample is 50.2%. The share of medium-sized and small-sized enterprises is 37.9% and 62.1%, respectively.

Both samples differ in terms of the threshold for exports share in total sales (25% vs. 15%), age (established after 2004 vs. 1995), and the fact that, in the "COVID-19" sample, only managers of companies from medium-tech and high-tech industries, serving either B2B clients only or B2B and B2C, were interviewed (the "pre-COVID-19" sample also included firms selling goods to B2C customers).

3 Hypothesis development

The main objective of this research is to analyze relationship between OL and market performance of Polish SMEs.

Presented literature review has shown that the majority of authors indicate importance of OL for firm performance from both theoretical perspective [Bontis et al., 2002; Brockmand and Morgan, 2003] and empirical findings [Tippins and Sohi, 2003; Keskin, 2006; Ussahawanitchakit, 2008, Kowalik, 2018]. As mentioned earlier, also Michna [2009] in her research related to Polish SMEs from the Silesia region found a positive relationship between OL and firm performance.

Thus, we pose the following hypothesis:

H: There is a positive relationship between OL and market performance of SMEs.

¹ The data were collected by AMS certified research company and financed by SGH Warsaw School of Economics statutory funds.

² The data were collected by Indicator certified research company and financed by SGH Warsaw School of Economics statutory funds.

4 Research results

The presentation of research results is organized as follows. For each set of variables and results, data related to the “pre-COVID-19” sample are presented prior to results for the “COVID-19” sample.

4.1 Independent variables: OL and balance of COVID-19-related consequences

The first set of independent variables is related to firm characteristics such as size (small vs. medium) and exporting activities.

Another set of independent variables is related to various aspects of OL. For the “pre-COVID-19” sample, they include a scale of organizational commitment to learning proposed by Sinkula et al. [1997] and two behavioral measures of OL: (1) willingness of firms to finance employee training and (2) the number of various types of informational sources for companies. For “COVID-19,” the sample data based only on the scale of commitment to learning by Sinkula et al. [1997] are available.

The following three items based on the Sinkula et al. [1997] scale of organizational commitment to learning were used in our research:

- “The sense around here is that employee learning is an investment, not an expense,”
- “Learning in my organization is seen as a key commodity necessary to guarantee organizational survival,”
- “In our corporate culture, the employees’ learning is seen as very important.”

All items have been measured on a 7-point scale ranging from “strongly disagree” to “strongly agree.”

For the “pre-COVID-19” sample, reliability of this scale is high – the Cronbach α coefficient is above 0.9 (0.954). Therefore, values of the items have been added, and the final single scale has values between 3 (very low commitment to learning) and 21 (very high commitment to learning). Descriptive statistics for items and the scale are presented in Table 1.

Answers are skewed toward the higher end of the scale. This result indicates that there are more firms with high commitment to learning as compared with those with low commitment.

The second independent variable is related to actual behavior (i.e., actions taken in enterprises vs. opinion expressed in the commitment to learning scale) concerning OL. An important question has been posed about a company financing of employee training. Answers to this question are presented in Table 2.

Companies that do not finance any training are the biggest group, followed by those which provide full financing of trainings.

Table 1. Descriptive statistics for the scale of organizational commitment to learning (“pre-COVID-19” sample)

Item	N	Mean	Std. deviation	Skewness		Kurtosis	
				Statistic	Std. error	Statistic	Std. error
The sense around here is that employee learning is an investment, not an expense	238	4.91	1.590	−0.585	0.158	−0.239	0.314
Learning in my organization is seen as a key commodity necessary to guarantee organizational survival	238	4.87	1.562	−0.606	0.158	−0.080	0.314
In our corporate culture, the employees’ learning is seen as very important	238	4.99	1.566	−0.638	0.158	−0.109	0.314
Commitment to learning	238	14.77	4.516	−0.644	0.158	0.013	0.314
Valid N (listwise)	238						

Source: own elaboration based on AMS data, 7-point scale.

Table 2. Answers to a question related to financing of employee training (“pre-COVID-19” sample)

Item	Frequency	Percent	Valid percent
Valid No financing	90	37.5	37.5
Covering a minority of costs	21	8.8	8.8
Covering most of the costs	48	20.0	20.0
Full financing	81	33.8	33.8
Total	240	100.0	100.0

Source: own elaboration based on AMS data.

The third variable related to OL takes into account actual behavior of whether companies obtain or acquire information from outside. Three types of behavior have been considered:

- obtaining free of charge information and analyses (34.6% of companies agreed),
- purchasing information and analyses (26.3% of companies agreed),
- acquiring patents (6.3% of companies agreed).

A composite index of “Diversity of information sources” has been created by adding types of external information sources for each company. The distribution of values for this variable is presented in Table 3.

According to findings in Table 3, almost half of respondents declared that their companies did not obtain or acquire any form of information from outside.

Table 4 presents correlations between the three measures of OL: scale of commitment to learning, readiness by companies to finance employee training, and diversity (or number) of external information sources.

Although all correlations are positive and significant, they are weak or moderately weak. The strongest, albeit still moderately weak correlation, close to 0.4, is between variables “Commitment to learning” and “Financing (or not) employee training.” Kendall’s tau-b correlations confirm the pattern from Table 4 with the coefficients of 0.287, 0.192, and 0.161.

For the “COVID-19” only sample, the sample data for commitment to learning are available.

Reliability of this scale for “COVID-19” sample is also high: the Cronbach α coefficient is above 0.9 (0.93). Similar to the previous sample, the values of the items have been added and the final single scale ranges between 3 (very low commitment to learning) and 21 (very high commitment to learning). Descriptive statistics for items and the scale are presented in Table 5.

Answers, similar to the “pre-COVID-19” sample, are skewed toward the higher end of the scale. Presented finding indicates that there are more firms with high commitment to learning compared with those with low commitment.

For the second sample, a variable accounting for the influence of COVID-19 pandemic-related restrictions on firms’ market performance has been created on the basis of answers about both negative and positive consequences of those restrictions for company performance.

Table 3. The number of types of information sources per company (“pre-COVID-19” sample)

Item	Frequency	Percent	Valid percent
Valid 0 – no information from outside sources	118	49.2	49.2
1 - information from one outside source	90	37.5	37.5
2 - information from two outside sources	25	10.4	10.4
3 - information from three outside sources	7	2.9	2.9
Total	240	100.0	100.0

Source: own elaboration based on AMS data.

Table 4. Correlations between three measures of OL (“pre-COVID-19” sample)

Characteristics		Commitment to learning	Financing (or not) employees’ training
Commitment to learning	Pearson correlation	1	0.392**
	Sig. (two tailed)		0.000
	<i>N</i>	238	238
Financing (or not) employees’ training	Pearson correlation	0.392**	1
	Sig. (two tailed)	0.000	
	<i>N</i>	238	240
Diversity of information sources	Pearson correlation	0.245**	0.193**
	Sig. (two tailed)	0.000	0.003
	<i>N</i>	238	240

**Correlation is significant at the 0.01 level (two tailed).

Source: own elaboration based on AMS data.

Table 5. Descriptive statistics for the scale of organizational commitment to learning (“COVID-19” sample)

Item	<i>N</i>	Mean	Std. deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. error	Statistic	Std. error
The sense around here is that employee learning is an investment, not an expense	219	5.13	0.752	−0.157	0.164	−0.713	0.327
Learning in my organization is seen as a key commodity necessary to guarantee organizational survival	219	5.11	0.736	−0.044	0.164	−0.450	0.327
In our corporate culture, the employees’ learning is seen as very important	219	5.42	0.870	−0.201	0.164	−0.570	0.327
Commitment to learning	219	15.66	2.214	−0.285	0.164	−0.454	0.327
Valid <i>N</i> (listwise)	219						

Source: own elaboration, based on Indicator data, 7-point scale.

Among four types of negative consequences, most of respondents indicated supply chain disruptions (53.4%) and increase of losses or decrease of profits (35.6%); They have also pointed out at customer bankruptcy/insolvability (14.2%) and the lack of suppliers (6.8%). Surprisingly, some respondents declared that their firms had experienced also positive consequences of the pandemic, reporting three elements such as fact that some competitors went bankrupt (8.2%), increase in demand for firm’s products (1.4%), and increase of profits or decrease of losses (1.4%).

An index of the strength and directions (negative to positive) of COVID-19 pandemic consequences has been created in a way that each negative consequence was marked as “−1” and each positive consequence as “1.” The distribution of this index is skewed toward the predominance of negative consequences with the balance of “−3” for 1.4% of companies in the “COVID-19” sample, “−2” for 13.2%, “−1” for 76.3%, “0” for 3.2%, “1” for 4.6%, “2” for 0.9%, and “3” for 0.5%.

4.2 Dependent variables: indicators of firm performance

Due to lack of precise figures about profits and sales for Polish SMEs, descriptive questions about market performance had to be applied.

For the “COVID-19” sample, three types of measures of market performance have been taken into account:

- general declarations about profits or losses for 2018 and 2017,
- declarations about sales evolution in 2018 compared with 2017 and in 2017 compared with 2016,
- perception of a given firm’s successfulness on the market compared with competitors.

Respondents from companies evaluated, in general terms, the level of profit/loss and sales dynamics on a 5-point scale. The degrees of the profit/loss scale include substantial loss (1), small loss (2), result close to zero (3), small profit (4), and substantial profit (5).

The degrees of scale measuring sales dynamics include substantial decrease by a 2-digit percent (1), decrease by a 1-digit percent (2), no change (3), increase by a 1-digit percent (4), and substantial increase by a 2-digit percent (5).

Success compared with competitors has been evaluated on a 7-point scale ranging from absolutely worse (1) via similar (4) to absolutely better (7).

Since correlations between market performance measures are high³, two supplementary composite variables reflecting 2-year market performance have been created for financial results and sales dynamics separately by adding values of respective scales.

Table 6 presents descriptive statistics related to the measures of firm performance for the “pre-COVID-19” sample.

Distribution of variables related to profits and sales shows skewness toward higher ends of scales reflecting good firm performance (i.e., substantial majority of firms declared to be profitable and reported increasing sales). High kurtosis for the “perception compared with competitors” measure is due to the fact that respondents from almost 68% of companies assessed it as “similar.” In total, the “pre-COVID-19” sample makes it possible to analyze relationships between three measures of OL and five measures of market performance. It is to be noted that distribution of variables shows skewness toward higher ends of scales reflecting good firm performance.

Measures of market performance for the “COVID-19” sample (without comparison to competitors) are similar to those used for the “pre-COVID-19” sample.

Table 7 presents descriptive statistics for declarations about profits or losses and sales evolution for the “COVID-19” sample. The period of data collection, i.e., December 2020 and January 2021, is characterized by uncertainty about 2020 results; therefore, they have been referred to as “estimated” in the questionnaire.

Table 6. Descriptive statistics for measures of market performance (“pre-COVID-19” sample)

Item	<i>N</i>	Mean	Std. deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. error	Statistic	Std. error
Financial results in 2018	240	3.92	0.782	−0.593	0.157	0.527	0.313
Sales dynamics in 2018 compared to 2017	240	3.71	0.881	−0.134	0.157	−0.560	0.313
Financial results 2017–2018	240	7.82	1.488	−0.380	0.157	0.011	0.313
Sales dynamics 2016–2018	240	7.41	1.634	−0.079	0.157	−0.373	0.313
Perception of success compared to competitors	240	4.37	0.980	0.956	0.157	2.252	0.313
Valid <i>N</i> (listwise)	240						

Source: own elaboration based on AMS data.

³ Firstly, correlation between financial results in 2018 and those in 2017 was 0.793 (Pearson) and 0.81 (Kendall) secondly, between sales dynamics 2018 vs. 2017 and 2017 vs. 2016 was 0.835 (Pearson) and 0.825 (Kendall).

Table 7. Descriptive statistics for measures of market performance (“COVID-19” sample)

Item	<i>N</i>	Mean	Std. deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. error	Statistic	Std. error
Financial results in 2020 (estimated)	219	3.36	0.945	−1.042	0.164	0.685	0.327
Sales dynamics in 2020 (estimated) compared to 2019	219	2.99	0.995	0.525	0.164	−0.602	0.327
Financial results 2019–2020	219	7.05	1.755	−0.938	0.164	0.256	0.327
Sales dynamics 2018–2020	219	6.69	1.808	0.237	0.164	−0.746	0.327
Valid <i>N</i> (listwise)	219						

Source: own elaboration based on Indicator data.

Although the majority of companies still declared profits (reflected by negative skewness for these measures of market performance), the sales dynamics seems to have been severely, negatively hit by the COVID-19 pandemic (unlike the “pre-COVID-19” sample, skewness turned to an opposite sign). An explanation of such a result may be traced to the Polish government’s policy of helping enterprises via “Anti-COVID-19 Shields.” This financial and fiscal support made it possible for firms to remain profitable in spite of declining sales.

4.3 Verification of hypothesis related to the relationship between OL and market performance

Table 8 presents correlations between measures of market performance and measures of OL for the “pre-COVID-19” sample.

Most of correlations are positive and significant, albeit they are weak; the measure of OL showing consistently the weakest correlations with measures of market performance is firm willingness to finance employee training.

Table 8. Correlations between measures of market performance and measures of OL (“pre-COVID-19” sample)

Item		Commitment to learning	Financing (or not) employees’ training	Diversity of information sources
Sales dynamics in 2018 compared to 2017 (5 outliers removed)	Pearson correlation	0.137*	0.081	0.239**
	Sig. (two tailed)	0.036	0.219	0.000
	<i>N</i>	233	235	235
Sales dynamics 2016–2018 (4 outliers removed)	Pearson correlation	0.204**	0.136*	0.299**
	Sig. (two tailed)	0.002	0.036	0.000
	<i>N</i>	234	236	236
Perception of success compared to competitors (4 outliers removed)	Pearson correlation	0.237**	0.155*	0.244**
	Sig. (two tailed)	0.000	0.018	0.000
	<i>N</i>	233	235	235

**Correlation is significant at the 0.01 level (two tailed).

*Correlation is significant at the 0.05 level (two tailed).

Source: own elaboration based on AMS data.

OL, organizational learning.

Although correlation analysis shows some support for hypothesis about positive relationship between OL and market performance, more complete analysis is needed in which firm characteristics, i.e., the size and the fact of being (or not) an exporter, are taken into account.

As it has been already pointed out, no OL measures have been correlated with measures of financial results. Analysis of variance shows that for both financial results in 2018 and financial results 2017–2018, the only significant variable is the fact of being or not being an exporter (with exporters declaring significantly better results than non-exporters).

Analysis of variance for other indicators of market performance (sales dynamics and success compared with competitor) shows that two out of three measures of OL reveal significant relationships with them.

Table 9 presents results of univariate analysis of variance for sales dynamics in 2018 compared to 2017 (“pre-COVID-19” sample).

It shows from Table 9 that “Diversity of information sources” shows the strongest relationship with sales dynamics in 2018, thus confirming results of correlation analysis from the Table 8. Another significant variable reflects the situation where exporters declared higher sales dynamics compared with non-exporters.

Table 10 shows results of univariate analysis of variance for sales dynamics during the period of 2016–2018 (“pre-COVID-19 sample”).

For the Polish SME sales dynamics during 2016–2018, the major explanatory variable is “Diversity of information sources,” confirming the results of correlation analysis. Commitment to learning shows “border zone” significance being slightly above the “0.05” level. Neither the fact of being an exporter nor the size of the firm has significance in explaining variations in sales.

Table 11 presents results of univariate analysis of variance for evaluation of success compared with competitors (“pre-COVID-19” sample).

Table 11 shows that significant explanatory variables for this measure of market performance are related to OL, i.e., “Diversity of information sources” and “Commitment to learning.” Financing employee training, albeit weakly correlated with market performance measures, didn’t show significant relationship in a broader context of variance analysis.

Thus, we may conclude that for the “pre-COVID-19” sample, data show partial support for the hypothesis about a positive relationship between OL and SME market performance. However, this relationship, (although significant for measures of market performance other than financial results) is weak.

Table 9. Analysis of variance for sales dynamics in 2018 compared with 2017 (“pre-COVID-19” sample)

Tests of between-subjects effects

Dependent variable: Sales dynamics in 2018 compared with 2017

Source	Type III sum of squares	df	Mean square	F	Sig.
Corrected model	14.851 ^a	6	2.475	3.788	0.001
Intercept	202.667	1	202.667	310.128	0.000
Commitment to learning	0.698	1	0.698	1.067	0.303
Financing of trainings	0.002	1	0.002	0.003	0.960
Diversity of information sources	5.608	1	5.608	8.581	0.004
Medium-sized firms vs. small-sized firms	0.086	1	0.086	0.132	0.717
Exporters vs. non-exporters	3.464	1	3.464	5.301	0.022
Firm size * Exp. vs. non-exp. interaction	0.319	1	0.319	0.488	0.485
Error	147.690	226	0.653		
Total	3,456.000	233			
Corrected total	162.541	232			

^a $R^2 = 0.091$ (Adjusted $R^2 = 0.067$).

Source: own elaboration based on AMS data.

Table 10. Analysis of variance for sales dynamics during 2016–2018 (“pre-COVID-19” sample; after removal of four outliers)**Tests of between-subjects effects**

Dependent variable: Sales dynamics during 2016–2018 (after removal of four outliers)

Source	Type III sum of squares	df	Mean square	F	Sig.
Corrected model	48.736 ^a	6	8.123	5.367	0.000
Intercept	862.521	1	862.521	569.922	0.000
Commitment to learning	5.721	1	5.721	3.780	0.053
Financing of trainings	0.301	1	0.301	0.199	0.656
Diversity of information sources	20.628	1	20.628	13.630	0.000
Medium-sized firms vs. small-sized firms	0.974	1	0.974	0.644	0.423
Exporters vs. non-exporters	0.636	1	0.636	0.420	0.517
Firm size * Exp. vs. non-exp. interaction	4.218	1	4.218	2.787	0.096
Error	343.542	227	1.513		
Total	15,577.000	234			
Corrected total	392.278	233			

^a $R^2 = 0.124$ (Adjusted $R^2 = 0.101$).

Source: own elaboration based on AMS data.

Table 11. Analysis of variance for evaluation of success compared with competitors (“pre-COVID-19” sample; after removal of four outliers)**Tests of between-subjects effects**

Dependent variable: Perception of success compared with competitors (after removal of four outliers)

Source	Type III sum of squares	df	Mean square	F	Sig.
Corrected model	20.234 ^a	6	3.372	4.646	0.000
Intercept	219.868	1	219.868	302.945	0.000
Commitment to learning	5.278	1	5.278	7.272	0.008
Financing of trainings	0.286	1	0.286	0.395	0.531
Diversity of information sources	5.510	1	5.510	7.592	0.006
Medium-sized firms vs. small-sized firms	0.437	1	0.437	0.602	0.438
Exporters vs. non-exporters	0.197	1	0.197	0.272	0.603
Firm size * Exp. vs. non-exp. Interaction	1.427	1	1.427	1.967	0.162
Error	164.024	226	0.726		
Total	4,632.000	233			
Corrected total	184.258	232			

^a $R^2 = 0.110$ (Adjusted $R^2 = 0.086$).

Source: own elaboration based on AMS data.

As it has been signaled earlier, OL for the “after-COVID-19” sample is taken into account by one variable: commitment to learning.

Table 12 presents correlations between measures of market performance and measures of OL (“COVID-19” sample).

Compared with results for the “pre-COVID-19” sample (Table 8), positive significant correlations appear also for the financial results, but they are very weak; so, the verification via analysis of variance should also be applied.

Table 12. Correlations between measures of market performance and commitment to learning (“COVID-19” sample, after removal of outliers)

Item	Commitment to learning	
Financial results in 2020 (6 outliers removed)	Pearson correlation	0.181*
	Sig. (two tailed)	0.008
	<i>N</i>	213
Sales dynamics in 2020 compared with 2019 (10 outliers removed)	Pearson correlation	0.162**
	Sig. (two tailed)	0.019
	<i>N</i>	209
Financial results during 2019–2020 (7 outliers removed)	Pearson correlation	0.152**
	Sig. (two tailed)	0.027
	<i>N</i>	212
Sales dynamics during 2018–2020 (13 outliers removed)	Pearson correlation	0.142**
	Sig. (two tailed)	0.042
	<i>N</i>	206

*Correlation is significant at the 0.01 level (two tailed).

**Correlation is significant at the 0.05 level (two tailed).

Source: own elaboration based on indicator data.

Table 13. Analysis of variance for sales dynamics in 2018 compared with 2017 (“COVID-19” sample; after removal of six outliers)

Tests of between-subjects effects

Dependent variable: Estimated financial results in 2020 (after removal of six outliers)

Source	Type III sum of squares	df	Mean square	<i>F</i>	Sig.
Corrected model	30,258 ^a	5	6,052	9,646	0.000
Intercept	34,265	1	34,265	54,618	0.000
Balance of COVID-19 consequences	6,057	1	6,057	9,654	0.002
Commitment to learning	1,141	1	1,141	1,819	0.179
Medium-sized firms vs. small-sized firms	0.039	1	0.039	0.062	0.803
Exporters vs. non-exporters	9,947	1	9,947	15,855	0.000
Firm size * Exp. vs. non-exp. interaction	3,582	1	3,582	5,710	0.018
Error	129,864	207	0.627		
Total	2,662,000	213			
Corrected total	160,122	212			

^a $R^2 = 0.189$ (adjusted $R^2 = 0.169$).

Source: own elaboration based on indicator data.

Table 13 shows results of univariate analysis of variance for estimated financial results in 2020.

When firm characteristics are taken into account, commitment to learning is no longer significant. Significant relationship is shown by the dimension exporters: non-exporters (with exporters declaring better financial results), balance of COVID-19-related consequences, and an interaction between exporting and company size (the best results have been declared by small exporters, followed by medium-sized exporters, then by medium-sized non-exporters and small non-exporters).

Other relationships of commitment to learning with measures of market performance are also not significant when analysis of variance is applied; therefore, they will not be presented.

The results for the “COVID-19” sample do not confirm hypothesis about positive relationship between OL and enterprises performance because very weak positive correlations are not confirmed in a broader context when analysis of variance is applied.

5 Conclusions

Adapted to the context of Polish small-sized and medium-sized enterprises, three items of the scale of OL proposed by Sinkula et al. [1997] showed good reliability and positive, significant, although weak correlations, with measures of OL based on behavior.

The fact that correlations between the two above-mentioned types of measures of OL were not strong and that the behavior related to OL also showed positive and significant relationships with some market performance measures (independently of the scale of OL) indicates the necessity to go beyond multi-item scales based on general declarations in the measurement of constructs.

According to the presented research results from the “pre-COVID-19” sample, partial support for the hypothesis about a positive relationship between market performance and OL for Polish SMEs was obtained. Two out of three measures of OL, i.e., diversity of information sources and commitment to learning showed a positive relationship with two aspects of market performance, i.e., sales dynamics and self-assessed success compared with competitors. No OL measures were found to be correlated with financial results.

For the “COVID-19” sample, although commitment to learning showed very weak positive correlations with both financial results and sales dynamics, these relationships were not confirmed when other firm characteristics had been taken into account.

The main limitation of presented research is that at least medium-term perspective could not be taken into account due to the form of our data (surveys conducted once on different samples of enterprises). Effects of a “sudden” increase in attitudinal learning commitment and/or spending on employee learning may be beneficial for a given company after some time.

In Sinkula et al. [1997] opinion, the relationship between market performance and OL is not straightforward. Their explanation is worth mentioning: “*a change in market performance is not a simple function of absolute organizational learning. First, before market performance changes can be expected, absolute thresholds of improvement must be surpassed (e.g., an automobile manufacturer may improve the braking ability of its automobiles 10 percent, but a 25 percent improvement may be necessary before consumers are able to perceive and, hence, react to the improvement). Therefore, learning may be affecting the dynamism of new product development (improvement) without affecting market performance. Second, the rate of learning within an organization must be at least equal to that of competitors if changes in market performance are to be expected (). For these reasons, in the short run, measures of market performance may mask real improvements in the learning capabilities of an organization.*” [Sinkula et al., 1997, p. 307].

Further research should also include other operationalizations of OL, e.g., spending on training and information acquisition as a percentage of sales and profits, expenses per employee, etc. It should be noted that the specificity of particular industrial branches seems to be of high importance and requires careful consideration in the context of OL and SME performance in further research.

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