



Technology management

Organizational learning capability, innovation and performance:
study in small and medium-sized enterprises (SMES)

Capacidade de aprendizagem organizacional, inovação e desempenho: estudo em pequenas e médias empresas (PMEs)

Capacidad de aprendizaje organizacional, innovación y desempeño: estudio en pequeñas y medianas empresas (PYMES)

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Abstract

Although the relation between the organizational learning capability, organizational innovation and performance has often been studied, there is little empirical evidence to support this perspective in small and medium-sized enterprises. This study aims at analyzing the influence of organizational learning capability in innovative performance and organizational performance of small and medium-sized enterprises (SMES). The research was conducted under the quantitative approach, descriptive and causal, and cross-sectional survey. The sample was composed of 92 enterprises in the textile industry. The data were analyzed through the technique of Structural Equation Modeling (SEM). The results show that the organizational learning capability influences the innovative performance of SMEs, however, the influence of the learning capability in organizational performance was not significant. The study provides evidence for these relations and shows that they are significant and positive in the context of small and medium-sized textile enterprises, context in which the empirical literature is particularly scarce. For future research it is suggested to evaluate contingency factors for innovative and organizational performance. Other studies could analyze the differences in innovation between manufacturing and service sector.

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Keywords: Organizational learning capability; Innovation; Organizational performance

Resumo

Embora as relações entre a capacidade aprendizagem organizacional, inovação e desempenho organizacional têm sido frequentemente estudadas, há pouca evidência empírica para apoiar essa perspectiva em pequenas e médias empresas. Neste estudo, objetiva-se analisar a influência da capacidade de aprendizagem organizacional no desempenho inovador e no desempenho organizacional de pequenas e médias empresas (PMEs). A pesquisa foi conduzida sob a abordagem quantitativa, descritiva e causal, *survey* e de corte transversal. A amostra foi composta por 92 empresas da indústria têxtil. Os dados foram analisados por meio da técnica de Modelagem de Equações Estruturais (MEE). Os resultados encontrados mostram que

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capacidade de aprendizagem organizacional influencia o desempenho inovador das PMEs, contudo, a influência da capacidade de aprendizagem no desempenho organizacional não foi significativa. A pesquisa fornece evidência para essas relações e mostra que são significativas e positivas no contexto de pequenas e médias empresas têxteis, contexto em que a literatura empírica é especialmente escassa. Para pesquisas futuras sugere-se avaliar fatores de contingência para a inovação e o desempenho organizacional. Outros estudos poderiam analisar as diferenças de inovação entre a indústria transformação e o setor de serviços.

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Palavras-chave: Capacidade de aprendizagem organizacional; Inovação; Desempenho organizacional

Resumen

Aunque a menudo se hayan estudiado las relaciones entre la capacidad de aprendizaje organizacional, la innovación y el desempeño en los negocios, hay poca evidencia empírica para apoyar este punto de vista en pequeñas y medianas empresas. En este estudio se tiene como objetivo analizar la influencia de la capacidad de aprendizaje organizacional en el desempeño innovador y el desempeño organizacional de pequeñas y medianas empresas (PYMES). Se ha utilizado un enfoque cuantitativo, descriptivo y causal, *survey* y de corte transversal. La muestra se compone de 92 empresas de la industria textil. En el análisis de los datos se ha utilizado la técnica de modelos de ecuaciones estructurales (MEE). Los resultados muestran que la capacidad de aprendizaje organizacional influye en el desempeño innovador de las PYMES, sin embargo, la influencia de la capacidad de aprendizaje en el desempeño organizacional no es significativa. El estudio aporta evidencia de estas relaciones y muestra que son significativas y positivas en el contexto de las pequeñas y medianas empresas textiles, aspecto en que la literatura empírica es particularmente escasa. Para futuras investigaciones, se sugiere que se evalúen los factores de contingencia para la innovación y el desempeño organizacional. Otros estudios podrían analizar las diferencias en innovación entre la industria de transformación y el sector de servicios.

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Palabras clave: Capacidad de aprendizaje organizacional; Innovación; Desempeño organizacional

Introduction

Organizational learning can be labeled “[...] as a field toward to the study of cognitive and social processes of knowledge in organizations that are imbricated in organizational and work practices” (Boff & Antonello, 2011, p. 184). In this perspective, knowledge is seen as content and learning the process by which knowledge is acquired (Easterby-Smith & Lyles, 2003). For Chiva and Alegre (2005) organizational knowledge is mainly in the field of strategic management, and makes use of economic language, whereas organizational learning is dominated by academics in the area of human resources.

Organizational learning has been implemented as a field of study among researchers from the 1990s (Bapuji & Crossan, 2004), suggesting the need for maximizing the use of knowledge in organizations efficiently (Chiva & Alegre, 2005; Easterby-Smith & Lyles, 2003). A generic definition for organizational learning is the way in which the organizations learn. It is characterized as an essential component in organizations that operate in turbulent environments, in which knowledge acts as a key resource (Jiménez-Jiménez & Cegarra-Navarro, 2007). Organizations that emphasize the learning in this type of environment are able to optimize the competitive experience (McGill & Slocum, 1993).

With regard to these definitions, organizational learning helps organizations create, transfer and integrate knowledge and experience, as well as to learn continuously. The ability

of organizational learning are the organizational and management characteristics that facilitate organizational learning process (Tohidi, Seyedaliakbar, & Mandegari, 2012). The ability of organizational learning is defined as all organizational and managerial practices that facilitate the learning process (Chiva, Alegre, & Lapiedra, 2007). In the same line of thought, Mbengue and Sané (2013) argue that it is the set of management practices that facilitate the learning process, or, as a set of mechanisms that increase the ability of an organization to maintain and improve its performance.

Innovation is related to the ability of organizational learning. Authors like Calantone, Cavusgil, and Zhao (2002) and Alegre and Chiva (2008) point out that organizational learning is described as one of the factors that precede the innovation. Jiménez-Jiménez and Sanz-Valle (2011) emphasize that organizational learning, innovation and performance are interrelated factors. Innovation implies novelty and use (Joyful & Chiva, 2008) and may trigger direct results in organizational performance or work with the innovative performance, i.e., in the results arising from innovation (Alegre, Lapiedra, & Chiva, 2006).

Although these relations have often been studied (López, Peón, & Ordás, 2005), there is little empirical evidence to support this perspective in small and medium-sized enterprises. Part of the research on organizational learning has been based on case studies, other non-quantitative descriptive methods and especially in large companies (Gunday, Ulusoy, Kilic, & Alpkan,

2011). This study seeks to fill this gap by analyzing the influence of organizational learning on innovative performance and organizational performance of small and medium textile enterprises (SMEs) of Vale do Itajaí – SC.

The study is justified because the increasing changes of the textile market result in increased competition in traditional markets of small and medium-sized enterprises which leads to increased need for innovative and organizational performance. For Amara, Landry, Becheikh, and Ouimet (2008) it is necessary that small and medium-sized enterprises turn to the development and implementation of organizational learning, allowing the dissemination and exploitation of knowledge among the organization, as well as, the external environment, which may reflect later in innovation.

The research conducted with small and medium-sized enterprises located in Vale do Itajaí is justified by the high concentration of textile enterprises in this region, occupying the second place in terms of employability, considering the national territory (Federation of Industries of Santa Catarina State, 2015). According to data from the Federation of Industries of Santa Catarina State (2016) 60% of textile establishments in Santa Catarina are located in Vale do Itajaí, with more than 2500 organizations. As for the size of the establishments, the southern region of Brazil has 17,248 micro enterprises, 2560 small enterprises, 387 medium-sized enterprises and 48 large textile companies (Brazil, 2015).

This research is part of a larger study that is being developed with textile enterprises from Santa Catarina, especially the ones in Vale do Itajaí. The article is structured into five sections. The first section includes the introduction of the article, being composed by the presentation of research theme and objective to be worked on. The second section deals with the theoretical framework and hypotheses. In the third section the research method is structured. Later, in the fourth section, data analysis is presented. The fifth section presents the final considerations from the results shown in the present study, and finally, the bibliographical references.

Theoretical model and hypotheses

Organizational learning capability can be defined as the ability of an organization to process knowledge, i.e., the ability to create, acquire, transfer and integrate knowledge and, also, to modify the behavior to reflect the new cognitive situation, with the aim at improving organizational performance (Jerez-Gomez, Cespedes-Lorente, & Valle-Cabrera, 2005).

Organizational learning capability acts as a facilitator of organizational learning process (Goh & Richards, 1997), understood as the organization tangible and intangible resources, as skills that act as a way of promoting competitive advantage, and that allows the organizational learning process (Alegre & Chiva, 2008). For Hsu and Fang (2009) the ability of organizational learning is understood as the organization ability to absorb and transform new knowledge and apply it to the development of new products with competitive advantage and high production speed.

In addition, Chiva et al. (2007) believe that the ability of organizational learning is both an organizational feature as a managerial one that, in addition to facilitating the learning process within organizations, operates within the learning process. It is considered by Camps, Alegre, and Torres (2011) as the absence of restrictions or barriers to organizational learning process. In this sense, the ability of organizational learning acts as a facilitator of organizational learning.

Organizations should develop mechanisms and practices that support or promote the creation of organizational knowledge. These mechanisms include socialization, internalization and externalization, as well as all the management practices that establish a climate conducive to learning (Mbengue & Sané, 2013). These practices are the essence of the organizational learning capability, which can be defined as the set of management practices that facilitate the learning process, or, as a set of mechanisms that increase the organization ability to maintain and improve their performance (Joyful & Chiva, 2008; Mbengue & Sané, 2013)

Chiva et al. (2007) analyzed factors that act as facilitators of organizational learning. To this end, they developed a scale with five dimensions: experimentation; propensity to risk; interaction with the external environment; dialogue and participatory decision making. The scale was also used in Jyothibabu, Farooq, and Pradhan (2010), Camps et al. (2011), Tohidi et al. (2012), Camps and Luna-Arocas (2012) and Mbengue and Sané (2013) works. The present study also uses the scale suggested by Chiva et al. (2007), and in the sequence each of the used dimensions is described.

Experimentation is the degree to which new ideas and suggestions are adopted and treated in the organization (Tohidi et al., 2012). Experimentation is related to supporting the new ideas, favorable responses to initiatives of employees and the development and facilitation of change. It also covers the search for innovative solutions to problems, based on the possibility of using methods and different procedures. Organizational learning requires the experimentation, being one of the ways to institutionalize it in the organization (McGill & Slocum, 1993).

Interaction with the external environment is understood as the factors that influence the organization, however, they are out of its control directly, as the competitors, social and economic systems and policies. The dimension consists of indicators related to the collection and reporting of information from the external environment; receiving and sharing information and interaction of employees with the external environment (Chiva et al., 2007). In environments of uncertainty the learning occurs by the transfer of knowledge, improvement of skills and by involvement in the resolution of problems within the organization (Popper & Lipshitz, 2000).

Propensity to risk is characterized by tolerance to ambiguity, uncertainty and errors. Organizations that see mistakes as unacceptable are not learning promoters. Being that the potential errors can act as learning facilitators. Propensity to risk is related to the incentive in facing new situations, taking risks that do not affect the company and the resources for projects involving new situations (Chiva et al., 2007; Popper & Lipshitz, 2000; Tannenbaum, 1997).

Dialogue is an essential resource for building a common understanding, to the extent that it allows one to see the hidden meanings of words and reveal these hidden meanings in the communication (Schein, 1993). The Dialogue concerns the free and open communication within work teams, facilitating communication and the presence of multi-functional work teams (Gomes, Machado, & Alegre, 2015). Dombrowski, Kim, Desouza, Fátima, Papagari, Baloh, and Jha (2007) argue that it is necessary to break down the barriers of communication. The hierarchy, the centralized power and authoritarianism limit the employee participation in problem solving.

Lähteenmäki, Toivonen, and Mattila (2001) explain that an organization can provide changes in support of organizational learning in order to develop certain characteristics, such as *participatory decision making*.

Participatory decision making facilitates the results through the involvement of all employees of the organization, resulting in commitment and satisfaction (Scott-Ladd & Chan, 2004). And this is one of the factors that facilitate organizational learning.

The literature indicates that organizational learning is commonly linked to innovation (Dodgson, 1993). Organizational learning can manifest itself in the efforts for the development of products, resulting in practices and skills to innovation (McKee, 1992). The means by which companies develop a new product are not fortuitous, researchers of innovation put considerable emphasis on the processes of organizational learning. Thus, every technological innovation requires organizational learning (Antonello & Godoy, 2011).

Studies suggest that the ability of organizational learning has a positive effect on innovative performance (Alegre & Chiva, 2013; Jiménez-Jiménez & Sanz-Valle, 2011; Joyful & Chiva, 2008). Innovation requires that individuals acquire existing knowledge and share this knowledge within the organization. For Hsu and Fang (2009) organizational learning positively affects the innovation. Based on the above, the following hypothesis is formulated:

H1. The factors that facilitate organizational learning have positive influence on the innovative performance of organizations.

Innovations are adopted in response to changes in internal and external environments, or as a preventive action to influence the environment. Small and medium-sized enterprises (SMES) have great conditions to innovate because in most cases they face the natural challenge of growth and development of their potentialities (Damanpour, 1992). Innovation is the transformation and exploitation of knowledge in organizations, involving the sharing of knowledge, as well as of information between employees (Jiménez-Jiménez & Sanz-Valle, 2011).

The innovative performance used in this study is divided into two dimensions, efficacy and efficiency. This perspective was worked initially by Alegre et al. (2006). The authors developed a measure scale of performance in product innovation called: innovative performance. The model psychometric properties were tested and validated in the context of biotechnology companies. *Efficacy* aims to verify how innovation economically impacts the organization, i.e., the success or outcome of innovation for

the organization. *Efficiency* is the process by which the results are achieved (Alegre et al., 2006).

Previous studies indicate that innovative enterprises can respond faster to environmental pressures, and therefore they have superior performance (Damanpour & Evan, 1984; López et al., 2005). Rosenbusch, Brinckmann, and Bausch (2011) report that innovation has a positive effect on SMEs performance, however, there are factors that influence the performance, such as the type of innovation, the organization age and the cultural context in which it is inserted.

The findings supported by Jiménez-Jiménez and Sanz-Valle (2011) showed that in smaller enterprises the effects of organizational learning on innovation and performance were more significant than in larger companies. The lack of organizational routine that some smaller organizations have makes the efforts of organizational learning on innovation be more intense.

Keskin (2006) studied the influence of market orientation, orientation to learning and innovation in SMEs, indicating that innovation affects the organizational performance positively, and that learning has a positive impact on innovation. Likewise, the introduction of new products takes place in most organizations regardless of the level of innovation, including small and medium-sized enterprises, quite numerous for most economies (Salavou, 2005).

Understanding the needs of consumers, the actions of competitors, the technology and the guidelines of organizational learning can lead the organization to benefit from innovation (Calantone et al., 2002). Both product innovations as entry into new markets by SMEs can contribute to improvements with regard to quality, as well as increased sales of products manufactured by organization (Golovko & Valentini, 2011).

Innovation is one of the key instruments to increase market share and to give the company a competitive advantage (Gunday et al., 2011), having a positive impact on the performance of companies, producing a better position in the market resulting in competitive advantage and superior performance. Thus, it has been hypothesized:

H2. The innovation performance has a positive influence on organizational performance.

The literature provides evidence of the positive relation between organizational learning and business performance, as in Baker and Sinkula's study (1999) in which the authors found that the orientation to learning has a direct effect on organizational performance. Prieto and Revilla's research (2006) demonstrates the learning positive influence in non-financial performance of organizations. In short, the empirical results are consistent with the theory and provide evidence supporting the positive relation between learning and organizational performance (Jiménez-Jiménez & Sanz-Valle, 2011).

The relation between factors that facilitate organizational learning, innovation and organizational performance has also been recognized by López et al. (2005), Wang (2008), Gunday et al. (2011) and Alegre and Chiva (2013). The authors support positive associations between facilitators of organizational learning and organizational performance in the following

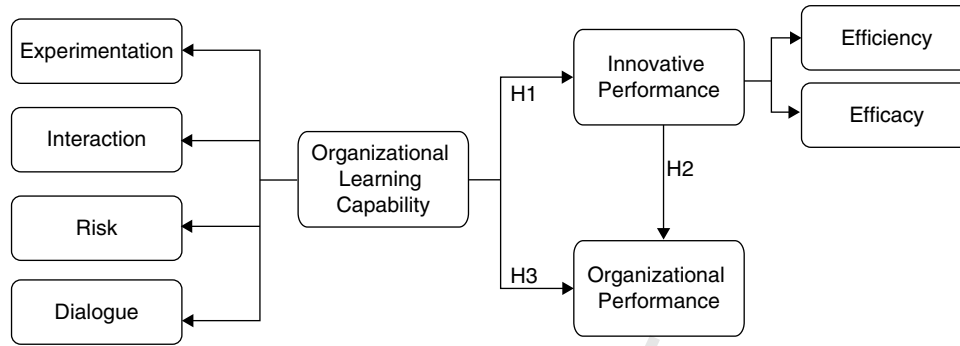


Fig. 1. Model proposed for analysis.
Source: Prepared by the authors (2015)

variables: customer loyalty, sales growth, profitability and return on investment.

Having said that, the hypothesis arises:

H3. The factors that facilitate organizational learning have positive influence on organizational performance.

Fig. 1 shows the model proposed for the analysis.

As shown in Fig. 1, organizational learning capability is constituted by the dimensions: Experimentation, Propensity to Risk, Interaction with the External Environment and Dialogue. The innovative performance is composed by the dimensions of Efficiency and Efficacy. And the Organizational Performance is formed by a single dimension. Following, the methodological procedures are presented.

In the context of SMEs, it is common for enterprises to be managed by one or two executives, named entrepreneur (Julien, 2013). The entrepreneurial personality comprises decisions, visions and intuitions of isolated individual (Mintzberg, Ahlstrand, & Lampel, 2000). In a complementary way, Julien (2013) addresses the centralized management with regard to micro-enterprises or in sectors considered traditional for up to medium-sized businesses, featuring a kind of independence by the director. Considering that in the context of SMEs most administrative decisions are taken by the director, it was decided not to include participatory decision-making dimension in the analysis model.

Research methods and techniques

The research is classified as quantitative as the approach, descriptive and causal, with respect to the objectives, survey and cross-sectional. The use of constructs has played an important role in designing a data collection instrument. In research on behavioral elements, there is no instrument that can produce precisely the measurement by a single metric unit (Jiménez-Jiménez & Sanz-Valle, 2011), researchers use two or more measures to assess a construct or scale. Given that the development of new constructs or measurement scales is a complex task, it was followed Prajogo and Sohal's suggestion (2004) and, whenever possible pre-tested constructs were used from previous empirical studies to ensure the validity and reliability

The construct of organizational learning capability is composed of the dimensions: Experimentation (four indicators), Interaction with External Environment (three indicators), Propensity to Risk (four indicators) and Dialogue (four indicators). The assertions were built by means of a Likert scale of 7 points, (1 “totally disagree” and 7 “totally agree”). The innovative performance construct composed of the dimensions: efficiency (four indicators) and efficacy (seven indicators). Assertive was constructed using Likert scale with scores ranging from 1 to 7, with 1 being “much worse than competitors” and 7 “much better than competitors.”

Organizational performance construct was measured by four items, being two of market performance (customer loyalty and sales growth) and two of financial performance (profitability and return on investment) based on Oslo Manual of OECD (2005) and López et al. (2005). The learning not always immediately affects the economic and financial performance. Instead of asking directly to respondents to report objective measures of financial performance, they were asked to compare the average performance realized in the company – over the last three years – with its competitors (Fig. 2). Likert scale of 7 points was used, being 1 for “much worse than competitors” and 7 “much better than competitors”.

Similar indirect measures of organizational performance were used in previous research (Gunday et al., 2011; López et al., 2005) when financial statements data are unavailable or when they do not allow accurate comparisons between companies. The reason for the use of subjective scales is the fact that companies are reluctant to disclose accurate records of performance, and managers are less willing to share performance objective data. Fig. 2 shows the dimensions and indicators used in this study.

Given the economic importance of the sector for the state of Santa Catarina, the textile industry of Santa Catarina participates of what one might call “global textile chain”, an expression that evokes the frame of international relations bundled in the production and distribution of textiles, mainly activities located in Vale do Itajaí (Jurgenfeld & Lins, 2011).

Composed of small and large companies involved in the production of bed, table, bath and clothing items, the productive chain of Vale do Itajaí concentrates various activities related to the textile industry as weaving, knitting, dyeing and printing, which gives the recognition to the region in regional and

ORGANIZATIONAL LEARNING CAPABILITY		
DIMENSION	Variables and Indicators	AUTHORS
Experimentation	Support for new ideas (Experiment 1).	Schein (1993); Amabile, Conti, Coon, Lazenby and Herron (1996); Chiva <i>et al.</i> , (2007) and Camps <i>et al.</i> , (2011).
	Favorable responses to initiatives of employees (Experiment 2).	
	Change valorization (Experiment 3).	
	Change facilitation (Experiment 4).	
Interaction with External Environment	Collection and reporting of information from external environment (InterExtEnv1).	Chiva <i>et al.</i> , (2007) and Camps <i>et al.</i> , (2011).
	Receiving and sharing information (InterExtEnv2).	
	Interaction of people with the external environment (InterExtEnv3).	
Propensity to Risk	Encouragement in coping with new situations (PropRisk1).	
	Take risks that do not harm the company (PropRisk2).	
	Resources for projects that involve new situations (PropRisk3).	
	Making decisions without having all the information. (PropRisk4).	
Dialogue	Encourage employees to communicate (Dialogue1).	
	free and open communication within work teams. (Dialogue2).	
	Facilitation of communication within the company (Dialogue3).	
	Presence of cross-functional work teams (Dialogue 4).	
INNOVATIVE PERFORMANCE		
Efficiency	Average time in weeks for the development of product (Efficiency1).	OECD-Eurostat (1997); Alegre <i>et al.</i> (2006); Alegre, Chiva and Lapiedra, (2009).
	Average time in total hours for product development (Efficiency2).	
	Average cost per Innovative project (Efficiency3)	
	Degree of satisfaction with the product (Efficiency4).	
INNOVATIVE PERFORMANCE		
Efficacy	Replacement of outdated products (Efficacy1)	OECD-Eurostat (1997); Alegre <i>et al.</i> (2006); Alegre & Chiva (2008); Alegre <i>et al.</i> (2009).
	Product line expansion (Efficacy2).	
	Development of byproducts (Efficacy3).	
	Development of new product lines (Efficacy).	
	Development of ecological products (Efficacy5).	
	Increased market share (Efficacy 6).	
	Opening of new domestic markets (Efficacy7).	
ORGANIZATIONAL PERFORMANCE		
Performance	Customer loyalty (Performance 1)	OECD (2005) López <i>et al.</i> (2005)
	Sales growth (Performance 2).	
	Profitability (Performance 3).	
	Return on investment (Performance 4).	

Fig. 2. Dimensions and indicators used in the study.

Source: Prepared by the authors (2015)

national scenario (Federation of Industries of Santa Catarina State, 2015).

The research sample definition was intentional, by accessibility and convenience. It was sought a sample of small and medium-sized enterprises located in a relatively homogeneous space geographically, allowing to minimize the impact of variables that cannot be controlled. In this sense enterprises were selected from the Vale do Itajaí – Santa Catarina, characterized as organizations that could somehow present attributes that contribute to the research to be performed. The sample was composed of 92 small and medium-sized enterprises in the textile sector located in Vale do Itajaí in the State of Santa Catarina.

The largest number of sample organizations operates in the manufacturing sector, mainly producing the personal clothing, including underwear, pajamas and swimwear (women, men and children) and household (bed, bath and table) Regarding the year of organization foundation, two opened prior to the 1900s are highlighted, however, most of the companies in the sample were opened in the years 1990–2009. Concerning the size, there is greater focus on small businesses.

A clothing industry segment characteristic is that it demands productive flexibility to adjust organizations to new fashion trends. The textile industry, here portrayed, includes the

producing organizations of natural, artificial and synthetic fibers, passing by spinning, processors and weavings, until the clothing, as description adopted by Brazilian Association of Textile and Apparel Industry (Associação Brasileira da Indústria Têxtil e de Confecção –ABIT).

The understanding of micro, small, medium and large enterprises is diverse and varies according to the region, financial-economic size, the branch of business and legal form. For this study it was used the classification of the Brazilian Service of Support for Micro and Small Enterprises (SEBRAE), which adopts the criteria of IBGE (Brazilian Institute of Geography and Statistics), classifying organizations according to the number of employees combined with the business sector, as shown in Table 1.

The data collection procedure was initiated by a prior meeting with the managers of each of the organizations selected for the study, where they were given a presentation letter of research. This preliminary contact has enabled the profile selection of survey participants, so that then it was possible to schedule suitable dates and times for data collection. The data collection instrument was printed and made available to the directors of the organizations. It was agreed the deadline of 15 days for the return of the questionnaires. However, this deadline has been

Table 1
Criteria for the classification of companies in Brazil by SEBRAE.

Company size	Sector	
	Commerce and services	Industry
Micro-enterprise	Up to 09 employees	Up to 19 employees
Small organization	From 10 to 49 employees	From 20 to 99 employees
Midsized organization	From 50 to 99 employees	100 to 499 employees
Large organization	More than 99 employees	More than 500 employees

Note. Source: SEBRAE (2015).

extended, in order to guarantee a higher percentage of return. The data collection occurred during the period from November to December 2014.

For data analysis, it was used the Confirmatory Factor Analysis - CFA to test the reliability and validity of the constructs. Following, it was held the Structural Equation Modeling - SEM, operationalized by SmartPLS software. The structural model indicates the relation between the variables and displays the amount of explained variance (Hair, Black, Babin, Anderson, & Tatham, 2009). This technique was adopted in order to test the relations between variables and validate a model to verify the influence of Organizational Learning in innovative performance, and if these constructs influence the Organizational Performance.

The reliability of each construct was calculated separately. An indicator commonly used for reliability is Cronbach's alpha (CA), being accepted values above 0.7. Reliability calculation through the CA does not consider the errors in the indicators. In this sense, it was also used composite reliability (CR) and the average variance extracted (average variance extracted - AVE). CR is a measure of internal consistency of items; values greater than 0.70 are suggested. AVE represents a measure of reliability that indicates the amount of variance in indicators, explained by the latent construct; the literature recommends values higher than 0.5 (Hair et al., 2009).

Regarding the model adjustment, it was observed the discriminant validity criteria which is regarded as an indicator that the constructs or latent variables are independent of one another (Hair, Hult, Ringle, & Sarstedt, 2014). Therefore, it was checked in two ways, first by Fornell and Larcker's criterion (1981), in which the square root must be greater than the correlation between the constructs. The second measure was based on the criterion of cross-loads, in which the loads must have greater value in construct than in others (Ringle, Silva, & Bido, 2014).

In order to evaluate the significance of analysis models it was observed values resulting from the Student *t* test, in which the values should be ≥ 1.96 (Hair et al., 2014), and *p*-value < 0.05 . Given these criteria, there is no need for assertive withdrawal of the constructs in these settings. The values of Q^2 (predictive validity or Stone-Geisser indicator) evaluate the model accuracy and the values should be > 0 and, f^2 (effect size or Cohen indicator) matches the usefulness of the construct to the model,

in which the values 0.02, 0.15 and 0.35, respectively are considered, small, medium and large ones (Henseler, Ringle, & Sinkovics, 2009; Ringle et al., 2014). After checking the rates of adjustment, it was verified the structural model result, as well as, the hypotheses testing. To this end, it was observed the Student *t* test (≥ 1.96), and *p*-value (< 0.05) between the constructs of the study. The results are shown in the next section.

Presentation and analysis of the results

At this stage, research data will be presented and analyzed, starting with the reliability indicators. Reliability - or absence of random errors in measurements of latent constructs - was evaluated by analyzing the homogeneity or internal consistency of the items used for its definition. Coefficients of AVE, CC and AC were calculated, as shown in Table 2.

In terms of AVE, only the construct of second order of organizational learning (AVE = 0.439) presented a value below 0.5. This analysis should be done sparingly, since the construct is formed by all of the four dimensions of first order. This is not an absolute value yet, since the lower threshold to 0.5 were considered acceptable by other authors (Bagozzi & Yi, 1988). With respect to CR all dimensions were above 0.70. Analyzing the indicators of CA contacts that all values were greater than 0.7 (Table 2), indicating good reliability (Hair et al., 2009). Based on reliability results, it is possible to certify that the constructs demonstrated acceptable limits for testing the structural model.

R^2 evaluate the portion of the variance of the endogenous variables, which is explained by the structural model. Indicates the quality of the adjusted model (Ringle et al., 2014). As Hair et al. (2014), the value of R^2 may be close to 0.75, 0.50 and 0.25 being considered, respectively: substantial, moderate and weak. For the area of social sciences and behavioral, Cohen (1988) suggests that $R^2 = 2\%$ is classified as a small effect, $R^2 = 13\%$ as the average effect and $R^2 = 26\%$ as great effect (Ringle et al., 2014). As noted in Table 2, all R^2 values were higher than 26%, indicating a great effect, which is a good indicator for the model. Table 3 shows the discriminant validity by Fornell and Larcker's (1981) criterion.

For discriminant analysis Fornell and Larcker's (1981) criterion was adopted. Discriminant validity is the extent to which the indicators of a model represent a single construct and the construct indicators are different from others. It is noted that the model has discriminant validity as AVE square root (in bold) is higher than the correlations between the other latent variables. When these conditions are met, there has been discriminant validity evidence, that is, in fact there are different measures for different constructs.

It was verified discriminant validity among all dimensions as Fornell and Larcker's (1981) criterion. It was found that AVE square root (in bold) is greater than the correlations between the other latent variables. In a complementary sense, it was observed the discriminant validity by the method of cross-loads, in which for each construct, higher loads were found in these than in the other ones. In this sense, it is concluded that the model constructs are reliable and valid.

Table 2
Indicators of reliability.

Constructs	AVE	CR	CA	R square – R ²
Organizational learning capability	0.439	0.859	0.906	–
Experimentation	0.774	0.932	0.903	0.515
Risk	0.701	0.903	0.857	0.643
Interaction	0.739	0.894	0.823	0.548
Dialogue	0.705	0.905	0.859	0.713
Innovative performance	0.830	0.910	0.914	0.409
Efficiency	0.820	0.948	0.926	0.825
Efficacy	0.637	0.897	0.856	0.833
Organizational performance	0.783	0.935	0.906	0.457

Note. Source: Research data (2015).
AVE, average variance extracted; CA, Cronbach’s alpha; CR, composite reliability

Table 3
Discriminant validity.

Dimension	Experimentation	Interaction	Risk	Dialogue	Efficacy	Efficiency	Performance
Experimentation	0.880						
Interaction	0.303	0.859					
Risk	0.316	0.658	0.837				
Dialogue	0.596	0.446	0.516	0.840			
Efficacy	0.382	0.386	0.432	0.596	0.798		
Efficiency	0.229	0.486	0.598	0.471	0.659	0.905	
Performance	0.309	0.330	0.446	0.502	0.685	0.522	0.885

Note. Source: Research data (2015).

For each assertion, values obtained by Student’s *t* test were evaluated, =1.96 (Hair et al., 2014) and *p*-value >0.05. Like all assertions have met these conditions, there was no need for adjustment in this stage. Following, analysis of *Q*² (predictive validity or Stone-Geisser indicator) and *f*² (effect size or Cohen indicator) were done. *SmartPLS* software generated values for the modes *Q*² and *f*²; it was used “*Blindfolding*” function. Table 4 shows the results.

GoF indicator (*GoF* – *goodness of fit*) is calculated to evaluate the model as a whole. However, Henseler and Sarstedt (2013) showed that the same does not have the power to distinguish valid and non-valid models. It is not recommended to use the indicator. (Ringle et al., 2014). *Goodness-of-fit* indicator, formerly quite common in research with *SmartPLS*, has been reported as inefficient in its statistical power to differentiate the quality of a

Table 4
Predictive relevance (*Q*²) and size of constructs effect (*f*²).

Constructs	<i>Q</i> ²	<i>f</i> ²
Dimensions of first order		
Experimentation	0.390	0.610
Risk	0.395	0.463
Interaction	0.438	0.496
Dialogue	0.489	0.504
Efficiency	0.637	0.690
Efficacy	0.516	0.445
Organizational performance	0.352	0.631
Dimensions of second order		
Organizational learning capability	0.000	0.372
Innovative performance	0.236	0.490

Note. Source: Research data.

structural model (Hair et al., 2014; Henseler & Sarstedt, 2013) and it was not used in this study. The next step is the examination of the structural model results, as shown in Fig. 3.

Regarding organizational learning capability, it appears (Fig. 3) that there was validity of the relations proposed in the second-order construct (organizational learning capability) with the first order variables: experimentation (*Γ* = 0.718), Interaction with the external environment (*Γ* = 0.740), propensity to risk (*Γ* = 0.802) and Dialogue (*Γ* = 0.845). This result was also observed in previous studies (Chiva et al., 2007; Tohidi et al., 2012). For Chiva and Alegre (2005) organizational learning involves joint construction of new collective meanings, through dialogue, equal participation, tolerance of different points of view, shared experiences and first-hand access to data. In these cases, the dialogue is of vital importance.

Dialogue was the dimension with greater influence on the ability of organizational learning. The construction of communication routines among groups or different hierarchical levels eliminates bureaucratic processes, allowing a higher degree of consistency and creativity, given that individuals make up a common thought process and start to get acquainted with the problems and goals of organization as a whole (Schein, 1993). Results indicate that the presence of work teams (formed by different sectors) are a common way of work. For Dombrowski et al. (2007) the transfer of free and open knowledge within work teams can lead to innovations.

In the analysis of the innovative performance construct, contacted that the variable “Efficacy5” it was found that the variable “Efficacy5” (Development of environmentally friendly products) showed a lower factor loadings than 0.60, so it was decided to remove the variable. After this adjustment, it was found

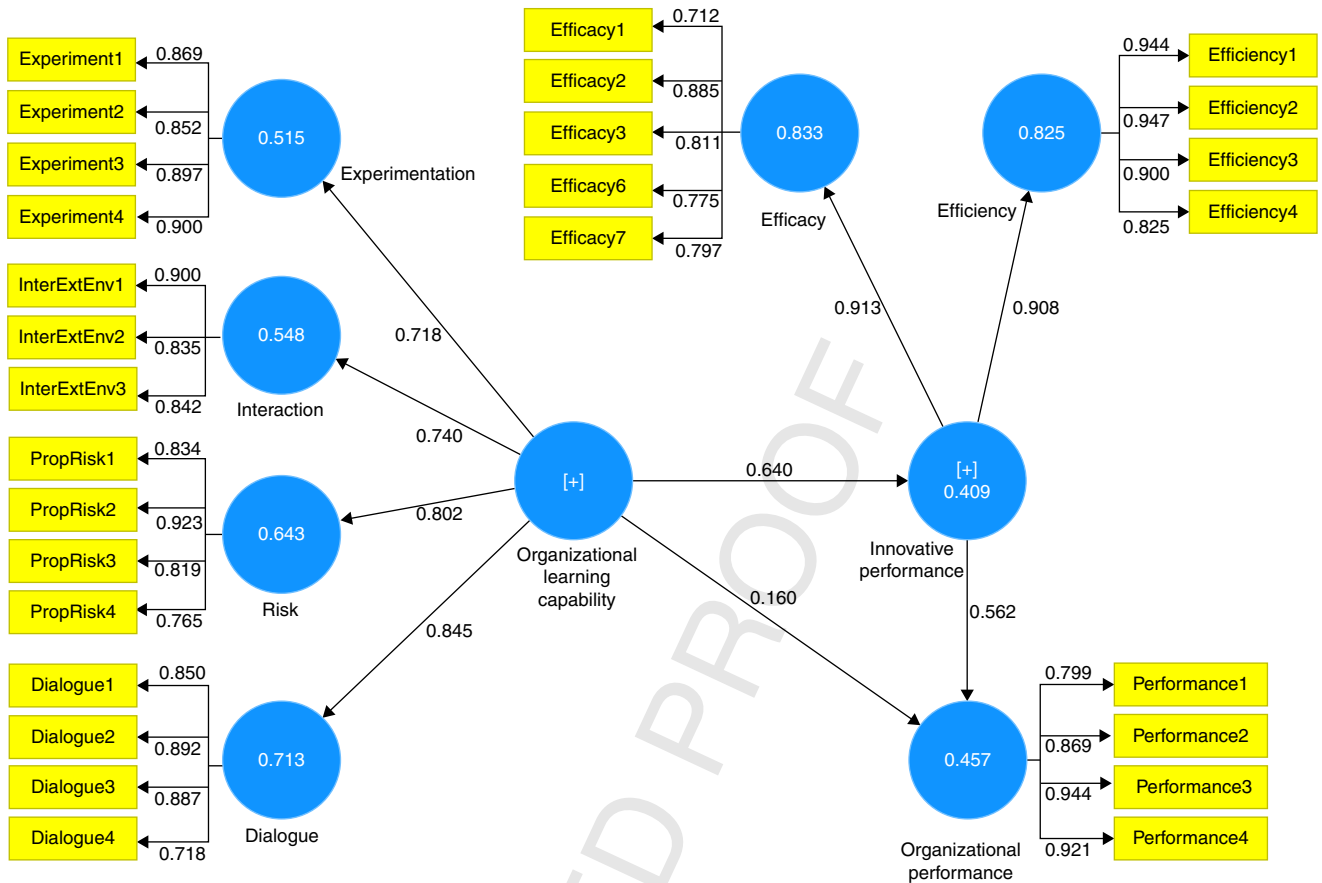


Fig. 3. Final structural model.
Source: Research data (2015)

571 that the results showed a significant correlation between the
572 dimensions of Efficacy and Efficiency. It is perceived that Effi-
573 cacy dimension was the one that showed highest factor load
574 ($\Gamma = 0.913$) i.e., the innovations introduced in the market.

575 Apparently, small and medium companies surveyed seek to
576 maintain the market through innovations in products to meet
577 external demands of a sector that constantly seeks for news, as
578 they operate with a diversity of products with extremely short
579 life cycle depending on fashion trends. Being an industry that
580 coexists with releases every season, it is understood that the
581 market itself, through fashion and variation of colors each season
582 requires, it ensures that there is a concern with replacement of
583 products.

584 The Efficiency dimension that is determined by the cost and
585 by the time of Innovative project, obtained value of ($\Gamma = 0.908$).
586 It is noticed a business concern with the cost and time spent on the
587 development of innovative projects. Being companies that are
588 constantly threatened by large corporations, it is understood that
589 the focus is on a competition for low production costs. Another
590 factor that can be cited is the rapid change in fashion trends,
591 leading organizations to develop products that remain in the
592 market for short periods of time. Table 5 shows the hypotheses
593 testing of the study.

594 As shown in Table 5, organizational learning capability
595 showed a positive relation of $\Gamma = 0.640$ ($p < 0.001$) in innovative

596 performance, the *T-Statistics* was greater than 1.96, which sug-
597 gests that the coefficients are robust (Hair et al., 2009). These
598 results support the H1 – *The factors that facilitate organizational*
599 *learning have positive influence on the innovative performance*
600 *of organizations*. Previous studies indicate that the ability of
601 organizational learning is a history of innovation. Learning has
602 a vital role in this relation by allowing businesses to achieve
603 speed and flexibility within the innovative process (Brown &
604 Eisenhardt, 1995; Jiménez-Jiménez & Sanz-Valle, 2011).

605 An organization that provide better ability to acquire and inte-
606 grate knowledge will perform better in the product or process,
607 thereby achieving better results in the development of new prod-
608 ucts. For Hsu and Fang (2009) a company that has the ability to
609 achieve new knowledge and integrating existing knowledge with
610 different methods will have a good performance in terms of prod-
611 uct and process innovation. In other words, the better the ability
612 of organizational learning, the better will be the organization
613 innovative performance.

614 The findings for H2 – *the innovative performance has a*
615 *positive influence on organizational performance* ($\Gamma = 0.526$,
616 *T-Statistics* = 6.123 and $p < 0.001$) indicate that innovation has
617 a positive and significant effect on organizational performance,
618 supporting the idea that innovation is one of the factors that lead
619 organizations to succeed in the long term. Studies on the rela-
620 tion of innovation on performance provides a positive evaluation

Table 5
Study hypotheses testing.

Hypotheses	Structural path	Path coefficients	Standard error	T-Statistics	p-values	Result
H1	Organizational learning capability → innovative performance	0.640	0.069	9.284	0.000	Supported
H2	Innovative performance → organizational performance	0.562	0.092	6.123	0.000	Supported
H3	Organizational learning capability → organizational performance	0.160	0.105	1.521	0.129	Not Supported

Note. Source: Research data (2015).

that innovation results in increased organizational performance (Damanpour & Evan, 1984; Calantone et al., 2002).

The main reason for the adoption of innovations is the desire of companies to achieve greater organizational performance and increase competitive advantage. Companies get additional competitive advantage and market share according to the level of importance that is given to innovation. Innovations become key factor for SMEs to build market reputation and thus to increase their market share (Gunday et al., 2011).

SMEs that are able to learn have better conditions to detect events and trends in the market. As a result, learning organizations are generally more flexible and quick to respond to new challenges than their competitors, thus keeping competitive advantages of long-term (Jiménez-Jiménez & Sanz-Valle, 2011). For López et al. (2005) the ability to learn faster than competitors may be the only sustainable competitive advantage.

Organizational learning capability showed a positive relation $\lambda = 0.160$, but not significant ($p = 0.129$) with the organizational performance, T-Statistics was 1521, ranking below 1.96, as suggested by Hair et al. (2009). Thus, the results do not support H3 – *Enabling factors of organizational learning have positive influence on organizational performance*. For the sample studied, organizational learning capability was not related to organizational performance. Taking into account the fact that innovation improves performance, these findings seem to reflect that innovation is a mediator of the relation between learning and organizational performance.

The results do not support the view that organizational learning influences organizational performance. The findings show that this relation occurs only indirectly, i.e., organizational learning capability influences the innovative performance which, in turn, influences organizational performance. These results contradict previous empirical research on the relation between learning and organizational performance (López et al., 2005).

The factors that facilitate learning can be considered a necessary condition but not sufficient for a better and sustainable organizational performance. Prieto and Revilla (2006) suggest that it can be assumed that learning will improve future performance. Over time, superior performance depends on superior

learning. Therefore, organizational learning is considered as the key to the company success, also, the ability to learn faster than the competitors can be a source of sustainable competitive advantage (Antonello & Godoy, 2011; Wang, 2008).

The literature not only suggests a positive effect of organizational learning on performance, but also indicates that innovation mediates this relation. In particular, some studies (Baker & Sinkula, 1999; López et al., 2005) suggest that organizational learning allows the company to develop abilities that enhance innovation and that innovation positively affects performance. Therefore, Innovative companies should promote organizational learning in order to maximize the effect of innovative performance on organizational performance.

This study suggests that organizational learning capability facilitates innovation. Therefore, SMEs that aims to improve performance through innovation must improve their organizational learning processes. This conclusion seems to be particularly important for these smaller companies and for companies operating in highly turbulent environments (Jiménez-Jiménez & Sanz-Valle, 2011).

Finally, the results confirm the theory since innovation is source of competitive advantage for SMEs. The facilitating factors of organizational learning had a positive effect on the performance of the surveyed companies. It was evident that the learning capability is a key antecedent of innovation and improves organizational performance. The results allow managers, especially in the context of small and medium-sized enterprises, to incorporate indicators of organizational learning capability in their management tools in order to effectively implement the factors or conditions for learning within organizations.

Conclusion

The objective was to analyze the influence of organizational learning capability on innovative performance and on organizational performance of small and medium enterprises (SMEs). The results show that organizational learning capability influences the innovative performance of SMEs, however, the influence of learning on organizational performance was not

significant. The relation between organizational learning and innovative performance indicates that the development of new products and processes has learning as background, as they are influenced by factors that facilitate learning.

The findings provide theoretical insights and can trigger further research. The study contributes to the evaluation of learning abilities, demonstrating that it is possible to measure relevant theoretical variables that are unobservable. The study contributes to the literature as it sought to examine, in a single model, the relations between organizational learning, innovation and performance, using already validated measures in international contexts. The work provides evidence for these relations and shows that are significant and positive in small and medium-sized textile enterprises, a sector in which the empirical literature is particularly scarce.

The results also provide insights for managers. The study highlights the need to pay attention to the factors that facilitate organizational learning, since they have a direct influence on innovation and indirect one on organizational performance. It is essential to have tolerance to ambiguity, uncertainty and errors. The findings indicate that the generation of new ideas and suggestions from employees must be answered and handled in the organization. In the competitive environment in which organizations of textile sector are inserted, innovation is not an option, but basic condition for survival.

Dialogue is the dimension that most influenced the organizational learning. Good communication can improve the distribution of knowledge within the company. Managers can use formal mechanisms to ensure sharing of best practices among employees and departments, making employees talk to each other, using for this purpose multi-functional work teams. Managers can encourage solving problems creatively and innovatively. SMEs should also promote the acquisition of new knowledge, for example, encouraging employees to participate in fairs and exhibitions regularly, promoting the development of new ideas and experiences outside of the company.

Fast fashion dynamic reinforces an innovation culture, which encourages experimentation with new alternatives for better management and product development; it makes enterprises to absorb this way of seeing the reality and they are prone to the adoption of new technologies and procedures. The textile industry is in constant change and adaptation to the market and trends. It is noticed that there is an innovation culture in the textile industry influenced by organizational learning factors that encourage innovation. This view is confirmed in relation to the improvement of production processes aiming at reducing costs and economic and financial improvement of enterprises.

Despite the adopted methodological strictness, this study has some limitations that should be considered when interpreting the results. The first limitation is that the sample has considered only SMEs in Vale do Itajaí – SC. Also the fact that it was used only one respondent as a source of information. The use of more than one respondent would increase the data validity. It is also suggested the application of social desirability scale (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

Another limitation is the research cross-sectional design and the analysis made at a single point in time. Thus, researchers must interpret carefully the causality between the constructs. Finally, the use of a subjective measure for organizational performance may cause bias in the results.

For future research it is suggested to evaluate contingency factors for innovation and organizational performance. Other studies could analyze the differences in innovation between manufacturing and the service sector.

It is also suggested a longitudinal study to evaluate the evolution of learning capability and organizational performance over time. Longitudinal data should also encourage more exhaustive study of the relation between learning capability and performance over time, along with the analysis of the relation between financial performance and non-financial performance.

Uncited references

Alegre, Chiva, and Lapiedra (2009), Amabile, Conti, Coon, Lazenby, and Herron (1996), and OCDE/EUROSTAT (1997).

Conflicts of interest

The authors declare no conflicts of interest.

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