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## Exploration, Exploitation and Firm Performance: The Mediating Role of Strategic Learning

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### ABSTRACT

*Today's environmental rapidity and dynamism pressurize business firms to address long-term targets rather than short-term success to ensure the future sustainability. Strategic entrepreneurship which is characterized by opportunity exploration and exploitation is recognized as an overriding route to firm success. This study examines the role of strategic learning as a mediator between the exploration and exploitation strategies and firm performance. A sample of 215 small and medium enterprises selected through purposive sampling from the Western Province in Sri Lanka for the empirical investigation. Hierarchical regression was employed to analyse the data. Results indicate that strategic learning is capable enough to fully mediate the relationship between exploration, exploitation and firm performance. The findings suggest that, the firms require strategic learning capabilities to disseminate and incorporate strategic knowledge generated by exploration into collective actions of the firms.*

**KEYWORDS:** *Exploitation, Exploration, Firm performance, Strategic learning.*

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## 1. Introduction

Firm's ability to explore and exploit business opportunities simultaneously is highly significant in the today's business world (Ireland et al. 2001, Kyrgidou & Hughes, 2010; Genc, 2012). Recent years, academic literature show evidence that, strategic entrepreneurship which is characterized by opportunity exploration and exploitation helps firms to response properly to market challenges and in turns create sustainable advantage in the competitive arena (Ireland & Webb, 2007; Hitt et al. 2011; Covin & Kurotko, 2008). In fact, some of studies suggest direct effects of exploration and exploitation on firm performance (Hitt et al., 2011; O'Reilly & Tushman, 2008). Studies further assert that the relationships between exploration and exploitation and performance are more complex and mediation and moderation impacts would be significant (Raisch et al., 2009; Raisch & Birkinshaw, 2008; Simsek et al., 2009). So that , researchers stress importance of taking the other internal processes into consideration in explaining the link between exploration, exploitation and firm performance (Kohtamaki et al. 2010, Rothaermel & Alexandre, 2009; Simsek et al. 2009). Within this context, studies have given increasing attention to examine how prior knowledge, learning processes and accumulation of new knowledge impact to individuals' actions such as exploration and exploitation (Cope, 2005; Corbett, 2005; Harrison & Leitch, 2005) and uncovered that learning is equally important to the opportunity exploration as well as to the opportunity exploitation actions designed to create wealth in the business firms (Corbett, 2005; Lumpkin & Lichtenstein, 2005; Haunschild & Miner, 1997; Ireland & Webb, 2007). Shane (2000) argues that entrepreneurial opportunities are existed in the market and act on those opportunities are rely on individuals' knowledge stock and their willingness to process knowledge necessary for that and people also show different levels of competencies in knowledge accumulation process. Garrett et al. (2009) suggest that, strategic learning improves the effectiveness and efficiency of market pioneering strategies.

A strand of studies suggested that, strategic learning capabilities enable firms to incorporate strategic knowledge from past actions and strategic actions in a way that yields competitive advantages and performance benefits (Anderson et al. 2009; Covin, 2006; Kuwada, 1998). However, there is no agreement among the scholars about the effect of strategic learning on the exploration, exploration and performance linkages since strategic learning capabilities are constrained by path dependencies and complementary assets of the firms. Therefore, this study seeks to examine the mediating role of strategic learning in the relationship between exploration, exploitation and firm performance.

## 2. Literature

The concepts of exploration and exploitation have been used in a broad range of organizational perspectives including strategic entrepreneurship (Hitt et al. 2011; Ireland et al. 2003). The exploration actions generally characterize entrepreneurial activities that seek to produce new business opportunities that are emerged outside the scope of the firms' current strategies. The exploitation actions are produced by increasing the firm innovative capability driven by current technological and market changes in their existing environment scope. Exploration actions essentially enhance firms' ability to recognize opportunities, creation of novel learning, and development of new competencies that are paramount in building long term prosperity (Ireland et al. 2003; Uotila et al. 2009). Exploration strategies apparent in new products and services, processes, methods, and markets (Ireland et al. 2003; Lumpkin & Dess, 1996). Exploration helps firms to search for new competitive positions and thereby find one or more market spaces to address the environment changes in terms of innovative outcomes. According to March (1991) exploration success may determine basically by firm ability to obtain new and diverse knowledge and subsequently integrate them to current knowledge. Exploitation success is driven by efficient management of the firm's resources in the context of changing environment. In contrast, an exploitation actions aim to acquire a firm's today's competitive advantage by managing resources and capabilities effectively (Benner & Tushman, 2003; Hitt et al. 2011; Lubatkin et al. 2006). In doing so, exploitation reduces variety by increasing operational efficiency and enhancing the capability to improve the performance in particular market (March, 1991; Uotila et al. 2009; Patzelt & Shepherd, 2009). The exploration process involves with a series of activities that aim to discover viable opportunities that provide a foundation for tomorrow's competitive advantage. Exploitation helps to enhance and maintain firm's competitive position by gradually extending their current knowledge base. Exploitation and exploration are mutually benefited to each other. Moreover, exploration takes place at integrating new knowledge with existing knowledge stock and thereby forming new knowledge to gains access new domains that become the foundation for future exploitation. An ability to foresee and then appropriately response to entrepreneurial change is one of the significant results of effective strategic entrepreneurship (Benner & Tushman, 2002; Hitt et al. 2011; Lubatkin et al. 2006; Boarch, 2004).

Research has paid increasing attention to model the entrepreneurial learning through the linkage between learning and actions (Cope, 2005; Corbett, 2007; Harrison and Leital, 2005). Some studies have investigated how entrepreneurs' learning process works, how they accumulate knowledge and how their learning influence on their actions (Cope, 2005; Politis, 2005; Corbett, 2007; Rae & Carswell, 2001; Young & Sexton, 1997). Entrepreneurial learning is defined *"the process by which people acquire new knowledge from direct experience and from observing the behaviors, actions and consequences of others, assimilate knowledge using heuristics to confront discrepancies that are come with information acquired in uncertain contexts, and organize newly formed knowledge by linking it with pre-existing structures"* (Rae & Carswell, 2001). Shane (2000) argues that entrepreneurial opportunities are existed in the market and act on those opportunities are rely on individuals' knowledge stock and their willingness to process knowledge necessary for that. People also show different levels of competencies in knowledge accumulation process. Learning takes place in incrementally (Leveinthal & March, 1993) and people tend to learn from the previous actions and from observing others' behaviors. Individual variation in the learning process occurs due to information processing differences among the entrepreneurs. Information processing differences lead people to make different judgments about the similar events. More specially, their judgments are heavily influenced by the prior knowledge held in their memories (Hutchinson et al. 2010). Inevitably, people tend to differ not only by the way of processing different information defiantly but possessing same information in differently as well. These behavioral partialities in the process of learning increase the dynamism of knowledge development process (Baron, 2006; Baron & Ensley, 2006; Corbett, 2007).

## 2.1 Hypotheses

Prior empirical studies have provided adequate evidence to support the view that exploration and exploitation actions have a positive impact on firm performance (He & Wong, 2004; Lubatkin et al. 2006). However, some have argued that these processes do not necessarily guarantee performance and the connection between ambidexterity and performance is more complicated (Venkatraman et al. 2007). In fact, Venkatraman et al. (2007) failed to find empirical support for the underlying relationship. Some studies have provided evidence that exploration and exploitation are curve linearly related to performance (Bierly & Daly, 2007; Siren et al. 2012; Ketchen et al. 2007). Bierly and Daly (2007) have found a concave relationship between exploitation actions and performance and a weak relationship between exploration actions and performance. Rothaermel and Alexandre (2009) suggest that firms with strategic learning capabilities obtain greater benefits from exploration and exploitation. These evidences support the following proposition. Learning how to acquire, bundle, leverage, and renew the firm's strategic resources is vital important to realizing competitive advantages and creating a value through exploration and exploitation (Hitt et al. 2011). In general, strategic management and entrepreneurship literature recognized the strategic role of learning (Anderson et al. 2009; Covin & Kuratko, 2008). Building on the Resource Based View, research has given increasing attention to the strategic learning to provide insights into how organizations can interpret, distribute and incorporate strategically important knowledge to facilitate exploration and exploitation and continuously recreate superior performance (Hamel, 2000). Firm that pursues exploration strategies concentrates on managing and designing their operations in which add extra value the current operations. Simsek et al. (2009) argue that such explorative actions create new technical, social, and organizational knowledge. In general, however, explorative actions do not yield returns without investing them in the creation, evaluation and implementation of the new knowledge generated (McGrath & MacMillan, 2000). This argument highlights the importance of exploitation strategies to translate the new ideas into marketable products and services (Crossan & Berdrow, 2003). Crossan and Berdrow (2003) state that the success of firm's explorative and exploitative insights is depending on strategic learning at all firm levels.

Recent studies provide some insights to support the association between exploration, exploitation and strategic learning (Covin et al, 2006; Macpherson & Holt, 2007). Wu and Shanley (2009) show that firm's knowledge stocks play an important role in promoting firm's exploration and exploitation actions which lead to superior performance. Covin et al. (2006) suggest that small firms require developing awareness about strategic learning process to improve their performance. They further argued that since entrepreneurial actions are generally risky and often fail, learning from such experiences would direct firms to make changes where necessary to make future efforts successful. These empirical results suggest that the relationship between exploration, exploitation and firm performance is mediated by strategic learning. Thus following hypotheses are proposed.

Hypothesis I (H<sub>1</sub>): The relationship between exploration, exploitation and firm performance is mediated by strategic learning.

Hypothesis II (H<sub>2</sub>): The relationship between exploitation and firm performance is mediated by strategic learning.

Research revealed that although strategic learning is importance for the successful use of exploration and sexploitation strategies, learning process is constrained by firms' limited capabilities to internalize and use new knowledge (Crossan et al. 1999; Deeds et al. 1999). Some studies found that learning process tends to favor for exploitation strategies (Levinthal & March, 1993; Wu & Shanley, 2009). In this context, exploitation dominates the strategic learning capabilities restricting the explorative actions (He & Wong, 2004). Thus, it can be argued that the relationship between exploration and strategic learning is moderated by exploitation.

Hypothesis 3 (H<sub>3</sub>): Exploitation moderates the relationship between exploration and strategic learning

### **3. Methods And Materials**

Two hundred and fifteen manufacturing SMEs in the Western Province in Sri Lanka provided data for the study. The Western Province accounts for the highest number of SMEs establishments in which strategic learning is expected to play an important role. The sample was drawn using purposive sampling technique because a compressive up-to-date data was not available in the region at the time that the survey was carried out. A specific questionnaire designed for the study was utilized in data collection. The questionnaire was piloted and tested for ensuring validity and reliability of the data.

The data analysis techniques were carefully selected and utilized in order to ensure the trustworthiness and usefulness of the results. Construct validity of the all constructs were initially assessed using the confirmatory factor analysis (CFA). Subsequently bi-variate correlation and hierarchical linear regression were used in the data analysis. Specially, mediation and moderation effects were assessed on the process developed by Hayes (2013).

#### **3.1 Measures**

Opportunity exploration is focused at discover the new business opportunities that emerge outside the scope of current strategies. Therefore, opportunity exploration refers a firm's ability to seek novel ideas by thinking outside the box to discover new value addition innovation for the firm. These discoveries may focus new technologies to create innovative product and services, to find novel ways to satisfy customers, and to identify the new markets or customer groups (Lubatkin & Lichtenstein, 2006; Benner & Tushman, 2003; He & Wong, 2004; Entrialgo et al. 2000). With these insights, a nine items inventory on a five point Likert type scale was used and developed for this purpose. The scale ranges from 1 to 5, 1 - completely disagree, 5 - completely agree, and higher score indicates a higher degree of exploration. The variable is measured as a latent construct since there is lack of properly identified indicators for measuring the underline phenomenon. However, some studies (Lumpkin & Lichtenstein, 2006; He & Wong, 2004) pave a basis for this construction. The reliability analysis is resulted an acceptable Cronbach's alpha coefficient of 0.890 for the construct.

Exploitation strategy is aimed at effectively managing firm's existing resources and capabilities. Exploitation strategy was measured using ten items that assess firms' commitment to improving quality and reducing costs, the firm's continuous search to improve the quality of its products and services, its effort to increase the automation of its operations, its constantly surveying of the satisfying of its existing customers, whether firm 'fine-tuned its offerings to keep its customer satisfied, and whether the firm penetrate its existing customer base (Lumpkin & Lichtenstein, 2005; Benner & Tushman, 2003). This inventory was formulated with ten items on a five point Likert type scale ranging from 1 to 5 which similar to the opportunity exploration inventory. The items were developed through the direction taken from the studies that have adapted Lumpkin and Dess (1996) and He and Wong (2004). Reliability test revealed a good Cronbach's alpha of 0.924 for the construct.

Learning relates to knowledge creation and development processes, knowledge sharing and integration processes as well as procedures of experience based learning and knowledge development, effective team working and well organized 'on the job training. Learning is defined as an organization's dynamic capabilities, which consists of inter-organizational processes of the dissemination, interpretation and

implementation and implementation of strategic knowledge (Kuwada, 1996; Pietersen, 2002). These processes were incorporated to seven item scale to measure strategic learning. The reliability test revealed acceptable Cronbach alpha value of 0.849 for the construct.

Nevertheless the extant literature fails to provide distinct empirical measures for assessing firm performance, the available evidence is loaded with vague ascertain and do not support for reliable scale for the measurement. However, in fact, sales levels, sales growth rate, profit, net profit, return on investment, cash flows, etc have generally been used (Baum & Locke, 2004; Chandler & Davidsson, 2009). Financial and objective nature of measures in SMEs is not available publicly and accessibility of such measures is also impossible due to the fact that SMEs do not practice proper recording systems to measure such performance. Thus, studies in SMEs tend to used non-financial and subjective measures for evaluating performance of small firms. This study used three performance indicators such as industry competitiveness, market performance and financial performance, to measure overall performance of the firms. In doing so, nine item scale was developed on a five point Likert type items ranging from 1 to 5. Respondents were asked to indicate to what extent they satisfied with the given nine indicators of performance in last three years, in case of new firms in the previous years. The reliability analysis revealed a well fitting Cronbach's alpha value for the construct ( $\alpha=0.827$ ).

## 4. Results And Discussion

### 4.1 Sample profile

In the sample, the majority of responded firms is owned and headed by male (75%) and female owned and operated businesses were found in food and beverage and apparel industry. The majority of firms in the sample were producing apparel products (26%) and food & beverage products (25%). A substantial number of businesses (13%) were involved in manufacturing of furniture and wood related products. Other firms were engaged in metal related production (15%), paper and printing works (14%) and chemical and rubber production (7%).

### 4.2 Relationship between exploration, exploitation, strategic learning and firm performance

The relationships between exploration, exploitation, strategic learning and firm performance were examined using correlation analysis. Its results are reproduced in Table 1. The results indicate that exploration and exploitation are positively correlated with strategic learning as well as firm performance. These correlations are significant at 0.05. As expected, strategic learning positively correlates with firm performance ( $r=0.565, p<0.01$ ).

Table 1 Results of Correlation Analysis

Variable	A	B	C	D
A. Exploration	(3.748)			
B. Exploitation	0.696**	(3.843)		
C. Strategic learning	0.522**	0.409**	(3.420)	
D. Firm Performance	0.299**	0.308**	0.565**	(3.75)

\*\* Correlation is significant at the 0.01 level (2-tailed) ( ) mean

### 4.3 Mediation role of strategic learning

A hierarchical linear regression was performed to examine the mediation role of strategic learning (SLN) in the relationship between exploration and firm performance (PER) (see Model I in Table 2). In Step 1 of the mediation model, the regression of exploration on firm performance, ignoring the mediator, was significant,  $b = 0.257, p<0.01$ . Step 2 showed that the regression of exploration on the mediator, strategic learning, was also significant,  $b = 0.602, p<0.01$ . Step 3 of the mediation process showed that the mediator (strategic learning), controlling for exploration, was significant,  $b = 0.733, p<0.01$ . Step 4 of the analyses revealed that, controlling for the mediator (strategic learning), exploration was not a significant predictor of firm performance,  $b = 0.023, p=.644$ . Sobel test was conducted and found full mediation in the model ( $z$

= 9.79,  $p < 0.01$ ). Thus, this result supports *Hypothesis I* and suggests that strategic learning fully mediates the relationship between exploration and firm performance.

Table 2 Results of hierarchical regression for mediation

Model	Variable	Step 1 (Dv-PER)	Step 2 (Dv- SLN)	Step 3 (Dv- PER)	Step 4 (Dv- PER)
Model I	Constant	2.436**	1.164**	2.945	2.409
	Exploration	0.257**	0.602**		0.023
	Strategic Learning	--	---	0.733**	0.843**
	R <sup>2</sup> /Adjusted R <sup>2</sup>	0.052	0.271	0.192	0.293
	Δ R <sup>2</sup>	--	--	--	0.241**
	F	9.273**	13.516**	18.828**	26.863**
	ΔF	--	--	--	17.590**
Model II	Constant	2.014**	1.529**	2.945	1.995
	Exploration	0.361	0.492**	--	0.013
	Strategic Learning	--	--	0.542**	0.654**
	R <sup>2</sup> /Adjusted R <sup>2</sup>	0.093	0.166	0.190	0.291
	Δ R <sup>2</sup>	--	--	--	0.198**
	F	18.787**	47.658**	19.273**	25.384
	ΔF	--	--	--	6.597**

*Dv* – Dependent variable, \*\* statistic is significant at the 0.01 level

Similar procedure was utilized to examine the mediation role of strategic learning (SLN) in the relationship between exploitation and firm performance (PER). Results are shown in Table 3 (see Model II). In Step 1 of the mediation model, the regression of exploitation on firm performance, ignoring the mediator, was significant,  $b = 0.361$ ,  $p < 0.01$ . Step 2 showed that the regression of exploitation on the mediator, strategic learning, was also significant,  $b = 0.492$ ,  $p < 0.01$ . Step 3 of the mediation process showed that the mediator (strategic learning), controlling for exploitation, was significant,  $b = 0.642$ ,  $p < 0.01$ . Step 4 of the analyses revealed that, controlling for the mediator (strategic learning), exploitation was not a significant predictor of firm performance,  $b = 0.013$ ,  $p = 0.780$ . Sobel test confirms full mediation in the model ( $z = 6.156$ ,  $p < 0.01$ ). So that *Hypothesis II* is supported and strategic learning fully mediates the relationship between exploration and firm performance.

#### 4.4 Moderation effect of exploitation on the relationship between exploration and strategic learning

To test the hypothesis that the exploitation moderates the relationship between exploration and strategic learning, a hierarchical multiple regression analysis was conducted. In the first step, two variables were included: exploration and exploitation. These variables accounted for a significant amount of variance in strategic learning,  $R^2 = .273$ ,  $F = 92.617$ ,  $p < 0.01$  (see Table 3). To avoid potentially problematic high multicollinearity with the interaction term, the variables were centered and an interaction term between exploration and exploitation was created (Aiken & West, 1991). Next, the interaction term between exploration and exploitation was added to the regression model, which accounted for a significant proportion of the variance in firm performance,  $\Delta R^2 = .028$ ,  $\Delta F = 1.745$ ,  $p < 0.01$ ,  $b = 0.361$ ,  $p < 0.01$ . Thus, *Hypothesis III* is confirmed and it suggests that exploitation enhances the relationship between exploration and strategic learning.

Table 3 Results of Hierarchical regression for moderation

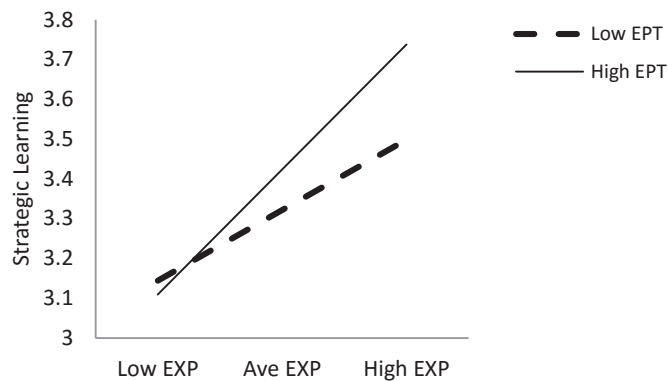
Variable	Step 1	Step 2
Constant	1.020**	0.843**
Exploration	0.530**	0.552
Exploitation	0.107*	0.119
<i>Exploration*Exploitation</i>		0.361

R <sup>2</sup> /Adjusted R <sup>2</sup>	0.273	0.301
Δ R <sup>2</sup>	--	0.028
F	92.617**	94.362**
ΔF	--	1.745**

Dependent Variable: Strategic learning

Examination of the interaction plot (Figure 1) showed an enhancing effect that as exploration (EXP) and exploitation (EPT) high, strategic learning enhanced. At a low exploration, strategic learning is similar for exploitation at low and high. Firms that are in high exploration and low exploitation possess less strategic learning than the firm with high exploitation. Exploitation moderates the relationship between exploration and strategic learning.

Figure I Moderation effect of exploitation on the relationship between exploration and strategic learning



## 5. Conclusion

This study confirms the mediating effect of strategic learning in the relationship between exploration, exploitation and firm performance. The results stress the importance of strategic learning in sustaining firm performance through the opportunity seeking and advantage seeking actions. Thus, managers should pay more attention on developing activities to institutionalize the knowledge gained from exploration and exploitation. Further research should focus on the role and mechanisms of strategic learning in other settings to validate the findings of the present study.

## References

- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park: Sage.
- Anderson, P., De Bruijan, A., & Angus, K. (2009). Impact of alcohol advertising and media exposure on adolescent alcohol use: a systematic review of longitudinal studies. *Alcohol Alcohol* , 44, pp. 229-243.
- Baum, J. R., & Locke, E. A. (2004). The relationship of entrepreneurial traits, skill, and motivation to subsequent venture growth. *Journal of Applied Psychology* , 89: 587–598.
- Benner, M. J., & Tushman, M. (2002). Process management and technological innovation: a longitudinal study of the photography and paint industries. *Administrative Science Quarterly* , 47 (4), pp. 676-706.
- Bierly, P. E., & Daly, P. S. (2007). Alternative Knowledge Strategies, Competitive Environment, and Organizational Performance in Small Manufacturing Firms. *Entrepreneurship, Theory and Practice* , 31(4), pp. 493-516.
- Chandler, G. N., & Davidsson, P. (2009). Asset specificity and behavioral uncertainty as moderators of the sales growth — employment growth relationship in emerging ventures. *Journal of Business Venturing* , 24(4): 373-387.

- Covin, J. G., & Kuratko, D. F. (2008). *The concept of corporate entrepreneurship*. Oxford, UK: Blackwell Publishers.
- Covin, J. G., Green, K. M., & Slevin, D. P. (2006). Strategic process effects on the entrepreneurial orientation-sales growth rate relationship. *Entrepreneurship Theory and Practice* , 30: 57–81.
- Crossan, M. M., & Berdrow, I. (2003). Organizational learning and strategic renewal. *Strategic Management Journal* , 24, pp.1087-1105.
- Deeds, D. L., DeCarolis, D., & Coombs, J. (1999). Dynamic capabilities and new product development in high technology ventures: An empirical analysis of new biotechnology firms. *Journal of Business Venturing* , 15(3), pp. 211-229.
- Entrialgo, M., Fernandez, E., & Vazquez, C. J. (2000). Linking entrepreneurship and strategic management: evidence from Spanish SMEs. *Technovation* , 20, pp. 427–436.
- Hamel, G. (2000). *Leading the Revolution*. Cambridge, MA: Harvard Business School Press.
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. Guilford Press.
- He, Z., & Wong, P. (2004). Exploration vs. exploitation: an empirical test of the ambidexterity hypothesis. *Organization Science* , 15 (4), pp. 481-94.
- Hitt, M. A., Ireland, R. D., Sirmon, D. G., & Trahms, C. (2011). Strategic entrepreneurship: creating value for individuals, organizations and society. *Academy of Management Perspectives* , 25(2), pp. 57–75.
- Ketchen, D. J., Ireland, R. D., & Snow, C. C. (2007). Strategic entrepreneurship, collaborative innovation, and wealth creation. *Strategic Entrepreneurship Journal* , 1, pp.371-385.
- Kuwada, K. (1996). Strategic Learning: The continuous side of discontinuous strategic change. *Organizational Science* , 9(6), pp. 719-736.
- Levinthal, D. A., & March, J. G. (1993). The myopia of learning. *Strategic Management Journal* , 14, pp. 95-112.
- Lumpkin, G. T., & Dess, J. G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review* , 21(1), pp. 135–173.
- Lumpkin, G. T., & Lichtenstein, B. B. (2005). The role of organizational learning in the opportunity recognition process. *Entrepreneurship Theory and Practice*, pp. 451-472.
- Macpherson, A., & Holt, R. (2007). Knowledge, learning and small firm growth: A systematic review of the evidence. *Research Policy* , 36, pp.172-192.
- McGrath, R. M., & MacMillan, I. C. (2000). *The entrepreneurial mindset*. Boston: Harvard Business School Press.
- Pietersen, W. (2002). The Mark twain Dilemma: the theory and practice of change leadership. *Journal of Business Strategy* , 23 (5): 32-37.
- Rothaermel, F. T., & Alexandre, M. T. (2009). Ambidexterity in technology sourcing: The moderating role of absorptive capacity. *Organization Science* , 20, pp.759-780.
- Simsek, Z., Heavey, C., Veiga, J. F., & Souder, D. (2009). A typology for aligning organizational ambidexterity's conceptualizations, antecedents, and outcomes. *Journal of Management Studies* , 46, pp. 864-894.
- Siren, C. A., Kohtamaki, M., & Kuckertz, A. (2012). Exploration and exploitation strategies, profit performance, and the mediating role of strategic learning: Escaping the exploration trap. *Strategic Entrepreneurship Journal* , 6, pp. 18–41.
- Wu, J., & Shanley, M. T. (2009). Knowledge stock, exploration, and innovation: research on the United States electromedical device industry. *Journal of Business Research* , 62(4), pp. 474–483.