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### **The Role of Organizational Learning and Innovation Capabilities on Performance: Evidences from Literature**

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#### **ABSTRACT**

This paper synthesizes the state of research on organizational learning capability (OLC) and its effect on innovation capability (IC) and performance based on a comprehensive review of 57 empirical studies published over the period of 2001 to 2018. This review consolidates various perspectives of empirical research on organizational learning capability into unique framework linking learning capability (exogenous variable) with innovation and performance as endogenous variables (outcome). And the review has found that majority of researchers have consensus about influence of OLC on innovation capability and performance and there is sufficient theoretical and empirical support for it. And learning capability is found as important antecedent of innovation capability. Directions for future research and practical implications are also discussed.

**KEYWORDS:** Learning Capability, Innovation Capability, Performance, Resource Based Perspective

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## 1. INTRODUCTION

The literature on organizational learning capability has witnessed many reviews from 1983 to 2002<sup>1-8</sup> and most of them were dealing with theoretical papers due to scarcity of empirical research<sup>9</sup>. Since 2000s there were an exponential growth in empirical research on OLC and publications linking with OLC with Innovation capability and performance increased. However, this development in OLC literature especially in relation with innovation and performance is not reviewed adequately. Hence, this study aims to examine what has been learned through empirical research on OLC and IC how it can contribute into practice and policy making.

## 2. METHODOLOGY

Traditional methods of 'Narrative Literature Review' has been criticized for lack of relevance due to the absence of rigor and use of biased methods<sup>10</sup>. In many cases the absence of thoroughness and quality in narrative methods impeded decision making and policy implementation<sup>11</sup>. To override this problem, this review has followed 'Systematic Review' Method in line with Campbell Collaboration's Guidelines. According Campbell Guidelines, systematic review involves following steps: 1) Formulating Review Question, (2) Setting Inclusion and Exclusion Criteria, (3) Systematic Data Search (4) Systematic Analysis and Synthesis (5) Presentation and Dissemination of Findings<sup>12</sup>.

The Review Question was formulated as: How firm performance can be optimized through innovation and organizational learning capabilities? And it is further structured into five reviewable sub-questions:

- 1- How innovation capability and learning capability are related each other?
- 2- Is learning capability a key antecedent of innovation capability?
- 3- How learning capability and innovation capability contribute to firm performance?
- 4- Whether the influence of OLC on innovation and performance is stable or conditional?

This review has applied two criteria for taking decision on inclusion or exclusion of studies: first include only those studies which were published between 2001 and 2018. 2001 is set as lower temporal horizon of the study because the developments in organizational learning capability research is not reviewed sufficiently after this period. Till 2003 there are reviews like<sup>6,9,13</sup>. Second, include only those studies which include any two variables from 'learning capability', 'innovation capability' and 'performance'. This criterion produced three types of studies containing either of innovation or performance as dependent variable and learning capability as independent variable and studies including all three variables.

For 'Systematic Search of Literature from data bases, libraries and journals two search engines namely Google Scholar and Summon Library Search Engine have been used. The key words

employed for searching were “Innovation Capability”, “Innovat\*”, “Learning Capability”, “Organizational Learning”, “Learning Orientation” and “Performance”. Exhaustiveness of search has been ensured using asterisk truncation (innovat\*) to include ‘innovation’, ‘innovations’ and ‘innovativeness’ and Boolean operators ‘AND’ & ‘OR’ on Summon and ‘OR’ Boolean on Google Scholar. Presentation and Dissemination of findings is the last and important step of this review. It also includes practical implications and suggestions for further research.

### **3. AN OVERVIEW OF RESEARCH ON OLC, IC AND PERFORMANCE**

This part discusses the status of studies happened during the review period. A search on Summon and Google Scholar with selected keywords in search fields: ‘Title’, ‘Abstract’, and ‘Subject’ ‘Terms’ Content type: ‘Journal Article’, Publication date: 01/01/2001 to 31/12/2018, Language ‘English’, produced 126 matching results. Beside this, a cross reference search using ‘Find’ feature in PDFshas been done across studies dealing with three Key Search Terms (learning, innovation, performance) particularly and it produced 16 more relevant studies raising the total to 142. Retrieved studies were further classified by examining Title, Abstract, Keywords, introduction and Conclusion. Out of the 142studies85 were empirical studies, 35 theory papers, fourteen were review papers, and eight were systematic reviews. From 85 empirical studies, based on inclusion and exclusion criterion 57 studies were selected for this review. Often it was difficult to distinguish studies as ‘empirical’ or ‘theory’, because many papers had both components. In such cases they have been added to empirical category in this study.

The majority of articles selected for review are coming from following journals: Journal of Business Research -10, Industrial Marketing Management -5, Technovation-5, Procedia - Social and Behavioral Sciences-4, European Journal of Innovation-4, Industrial Management and Data Systems-3, Journal of Management Studies-2, Journal of Marketing-2, Asia Pacific Management Review, and Strategic Management Journal (SMJ) etc.

During the 2001 to 2018on an average there was three empirical studies on Learning, Innovation and Performance (LIP) published each year. And there was substantial increase in average during 2005and 2013, five studies per year. Especially, in 2006 and 2012there was 6and 8 publications respectively, the highest in whole review period. This growth in number of empirical studies onLIP shows the importance of the field and its significance among researchers and stakeholders (See Figure 1).

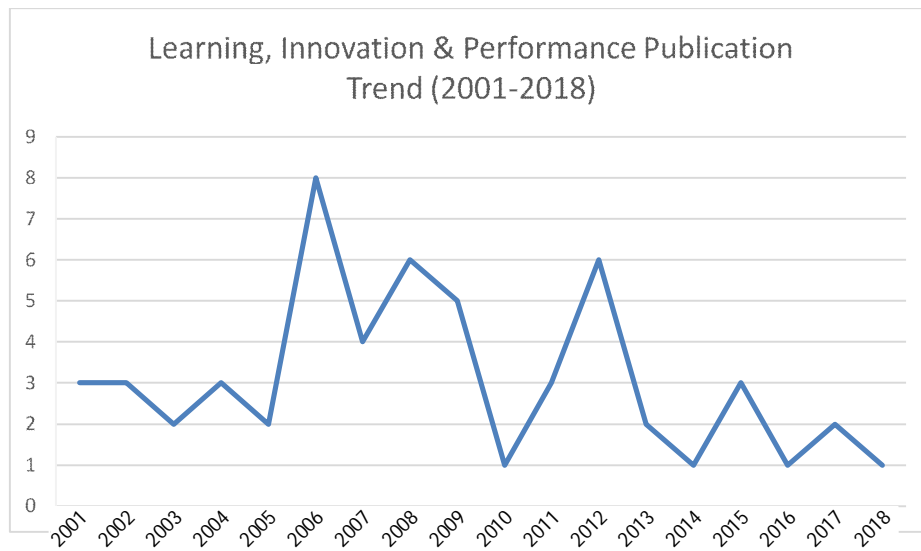


Figure 1. Learning, Innovation & Performance Publication Trend

Among the selected empirical studies on LIP, 55% belongs to manufacturing sector which includes tiles, chemical, pharmaceutical, electrical industries and rest of the studies are conducted in service sector which includes government agencies, NPOs, communication, transportation, and management services.

#### 4. ORGANIZATIONAL LEARNING CAPABILITY

The enormous studies have come on organizational learning during the last two decades. It is a process by which an organization acquires new insights and knowledge from the common experiences of members within the firm, and it has the power to affect firm's culture and capabilities<sup>14</sup>. Whereas, organizational learning capability can be understood as managerial and organizational characteristics that facilitate process of knowledge construction through sharing of beliefs, meanings and experiences over time and permit an organization to learn<sup>15</sup>.

There is a vast extent of studies about Organizational Learning Capability (OLC) in RBV literature and they establish that OLC is an essential factor for achieving innovation and growth for firms<sup>16-19</sup>. According to advisors and strategic scholars, organizational capabilities carry superior normative characteristics, especially organizational learning capability, which is the 'best' source of competitive advantage<sup>20</sup>.

As in the case of any evolutionary natural process of a dynamic concept, organizational learning also is not exempt from widespread controversy and theoretical dismay. Different scholars looked at organizational learning from different angles. The approach of Barbara Levitt and James G. March is the prominent view which states that organizational learning is routine based, target oriented and history dependent<sup>6</sup>. The consequent scholars focused on how organizations absorb their learnings from history to mold their routine activities and thus develop conceptual frameworks. It is

also important that how organizations learn from their own experiences as well as experience of others to improve their practices and performance.

Since OLC is an abstract construct it very difficult to measure it and thus researchers have derived distinct tools for OLC during advancement of RBV literature. However, the measurement scale developed by R Chiva got more popularity and acceptance. It was contributed by Ri. Chiva<sup>22</sup> in his study titled “Development and Validation of an Instrument to Measure Organizational Learning Capability”. The study introduced five dimensions of OLC: (i) Risk Taking, (ii) experimentation, (iii) dialogue, (iv) interaction with external environment and (v) participative decision making. This tool distinguished from previous scales by focusing on process and sources of learning capability, instead of focusing on output metrics. This scale have been widely used by many researchers to measure OLC and find out relationship with other organizational issues such as product innovation<sup>15</sup>, firm innovativeness<sup>23</sup>, and firm performance<sup>24</sup>. Since the scope of this review is limited to tracing the literature evidences supporting the interlinks between capabilities and performance a detailed review of all other tools for assessing OLC is not included here.

## 5. ROLE OF LEARNING CAPABILITY ON PERFORMANCE

The role of learning capability in driving the performance of firms is an extensively researched concept. The literature evidences shows that learning capability is critical contributor to business performance<sup>25-27</sup>.

However, there is much debate on whether this effect is direct or indirect. Many researchers argued that there is no direct effect for OLC on performance rather it is achieved through OLC's influence on innovation capability<sup>19</sup>. Kocoglu<sup>28</sup> had developed a model in which technological learning is treated as enhancing factor of innovation capability and performance and which was supported by other researchers also (eg. Carayannis, Alexander, & Ioannidis,<sup>29</sup> which illustrated three levels of innovation (instrumental, innovative, creative) at which OLC effects innovation and then performance. The Direct relationship between learning and performance has established by only few researchers like Mavondo, Chimhanzi, & Stewart,<sup>30</sup> with ( $p < 0.0001$ ) and by Kalmuk & Acar<sup>31</sup> where they found that learning capability is positively related to profitability of firms ( $r = 0.3466$ ).

Another issue which empirical OLC literature underscored yet is whether the effect of learning on performance is constant across industries or not. There are evidences for variance of this effect according to the changes in industries and environments. For example the influence of learning capability on performance in Export industry and SMEs is found as insignificant<sup>24,32,33</sup>. Another example is the Total effect of learning capability on innovation and performance is higher for firms in high turbulent environment and lower for firms in stable environment and individual effect on

performance is lower in turbulent environment and high in stable environment<sup>25</sup>. This phenomenon was further supported by Wu & Shanley,<sup>34</sup> who found that turbulence of environments will force companies to practice learning activities so that they can bring new ideas and concepts to face their competitors. Thus, dynamic environment causes the increased effect of OLC on Performance.

## **6. INNOVATION CAPABILITY**

Innovation capability (IC) refers to ability of a firm to apply knowledge to innovation activities to create added value like new product or service. It is commonly defined as adopting an idea or behavior in relation to a product, service, instrument, system, policy or program which is new to the company<sup>19</sup>. Xu, Lin, & Lin<sup>35</sup> considered IC as “the capacity of gaining access to, developing and implementing innovative technologies for designing and manufacturing” while Chen<sup>36</sup> defined it as “firm's capabilities, grounded in the processes, systems, and organizational structure, which can be applicable to the product or process innovation activities”. Whereas Koc T<sup>37</sup> defined it as “continuous improvement of the overall capabilities and resources that the firm possesses to explore and exploit opportunities for developing new products to meet market needs”. Hogan<sup>38</sup> has contributed a holistic and comprehensive definition for innovation capability which considers a broad range of innovation activities and performance implication which states that it is “a firm's ability, relative to its competitors, to apply the collective knowledge, skills, and resources to innovation activities relating to new products, processes, services, or management, marketing or work organization systems, in order to create added value for the firm or its stakeholders”. It is observed from the review of studies above that most of the definitions emphasize the point that innovation indicates the application of a new idea or behavior especially regarding with product or process development. On the other hand, the terms like innovation, Innovation Capability, Innovation Capacity, and Innovative capability has been used interchangeably and there is no consensus about the definition and underlying meanings of these terms among researchers.

Literature seeking the link between innovation and performance has demonstrated varied tools for measuring innovation capability. There is no unanimity about which composition of dimensions will fully explain the innovation capability construct across the industries.

Tang recognized six dimensions for innovation namely knowledge and skills, information and communication, behavior and integration, project raising and doing, the external environment, and guidance and support<sup>39</sup>. Other indicative dimensions on innovation capability are ability to utilize/execute new ideas, utilize/execute new behaviors, utilize/execute new products, utilize/execute new academic services, utilize/execute new technology utilize/execute new administrative practices.

Recent researchers have identified some other dimensions for innovation capability construct, which received wider acceptance, they are: Product innovation, Process Innovation, Marketing Innovation, Organizational innovation<sup>40,41</sup> technology focused innovation, client focused innovation, behavioral operational process, Marketing focused innovation<sup>38</sup>.

## **7. INFLUENCE OF LEARNING CAPABILITY ON INNOVATION CAPABILITY**

This part reviews the studies that treated organizational learning capability as an antecedent of innovation capability of firms. Although, the theory and concept of linking organizational learning capability with innovation capability was very popular in literature, the empirical studies started to appear in literature after 2001 onwards.

Many studies during 2001 and 2010 found that organizational learning capability positively affects innovation capability of organizations such as<sup>16,26,33,42-44</sup>. Organizational learning is one of the most important factor contributing to the innovation of firms. And innovation is perceived as basic important determinant of organizational performance in competitive environment<sup>30,45-47</sup>. Kalmuk & Acar and Lin et al.,<sup>31,33</sup> established that learning capability as intermediate variable effecting the link between innovation and performance. Researchers also have observed that innovativeness of an organization can be identified by looking at their approach towards organizational learning<sup>48</sup>. Studies have found that the learning capability is a necessary component for companies to innovate and survive<sup>17,19,49</sup>.

This trend in literature has continued post to 2010 as well. A good amount of studies found that there is strong relationship between Learning Capability innovation capability of firms<sup>22-24</sup>. And learning capability is considered as critical enabler of Innovation<sup>20,50</sup>. The greater the organizational innovation is required by a firm, the greater importance needs to be given towards creating environment for learning new things from existing knowledge<sup>19</sup>. A high and strong learning capability is necessary factor for high innovation<sup>51-53</sup>. The mechanism of organizational knowledge through which new knowledge is produced from existing knowledge (organizational learning) causes organizational innovation<sup>19</sup>.

Em Sutando<sup>20</sup> extended above findings to educational industry and he found that organizational learning capability and creativity of universities significantly influences the organizational innovation. And he emphasised the need for creating more learning environment among lectures and employees; the more learning, the more new ideas will come up and institutions will innovate fast. This result was found as common for both public and private universities.

The review also found that one stream of studies are following a classification approach where innovation is studied as different types such as product innovation, process innovation market innovation and organizational innovation and technological innovation etc.<sup>14,15,17,19,41,54,55</sup>. While other stream of scholars focused upon orientation towards learning and innovation. They argue that learning orientation, culture and knowledge acquisition facilitates innovation orientation<sup>16,42,45,47,56</sup>.

## 8. INFLUENCE OF INNOVATION CAPABILITY ON PERFORMANCE

During the period between 2002 and 2018 several studies have been conducted to study the influence of innovation capability on performance variable. Innovation capability is regarded as an important factor for performance of companies especially in competitive environments<sup>25,51,57</sup>.

Innovation capability widely recognized as super catalyst for competitive advantage and firm performance in RBV literature. Gomezelj found that innovation capability is one of the most significant capabilities that contributes superior performance<sup>58</sup>. Maintaining effective organizational innovation is the solution to achieve competitive advantage to face uncertainties and environmental challenges<sup>59</sup>.

Many extensive studies on the link between innovation capability and performance have contributed empirical evidences that there is a positive link between them<sup>25,60-62</sup>. Transformational leadership is another variable which influence the performance where leaders transforms innovative behaviors of employees into new ideas and products<sup>63</sup>.

There are wealth of evidences in academic literature that support the link between innovation capability and performance and show that innovation capability is the most significant driver for sustainable performance<sup>58</sup>. The study results of<sup>19,25,27,43,58,64</sup> shows that innovation have direct impact on performance of business firms both in service sector and manufacturing sector. However, few studies<sup>65,66</sup> indicated a negative link or no link between innovation and performance and<sup>40</sup> though neglected direct impact in manufacturing industry, they found IC indirectly contributes to the performance via significantly effecting operational performance. In food exporting firms the components of effective innovation capability like culture, resources, and organizational management have significant effect on performance.

Few studies have taken one more step ahead to extend these findings into different perspective. They concluded that though the innovation has positive impact on organizational performance, it also bears some negative outcomes such as high cost burden, exposure to market risk, resistance and frustration of employees and inherent casualties occurring while implementing recurrent changes, etc. Hence innovation shouldn't be seen as all-time solution for all firms in all



situations, rather a caution is required while adopting innovation about its riskier and expensive nature<sup>67</sup>.

Another observation is that the influence of innovation capability on performance is not static everywhere, but it is dependent on environment in which the firm operates. For example Wright, Palmer, & Perkins found that product innovation capability affects the performance of small business firms in turbulent environment, but it doesn't affect in pleasant environments<sup>68</sup>. Gaining required innovation capability is the strategic way to face environmental challenges and build competitive advantage<sup>69,70</sup>.

Likewise, the effect of innovation capability on performance is also contingent on the pattern of innovation types. If a firm adopts same type of innovation types it will not yield any added performance, but keeping divergency from traditional norms in the industry and trying new types of innovation will drive greater performance<sup>71</sup>.

Similarly, a number of studies have reported evidences in support of the view that innovation capability enables the firms to deal with external environmental changes effectively<sup>19,72</sup>.

Finally, the relationship between innovation and performance is conditional to some moderating variables. Studies have found the size, age and industry type and environmental conditions are the significant moderators and they influence the effect of innovation capability on performance<sup>73,74</sup>. Age of organizations yields added experience and market awareness which fastens the innovation activities and in turn triggers performance<sup>75</sup>.

## **9. CONCLUSION AND IMPLICATIONS**

This review has identified many interesting developments in literature dealing with capabilities of learning and innovation with regard to performance. From the review of studies on resources and capabilities it has been concluded that firm specific assets and capabilities are important factors which contribute to the performance of organizations. This perspective is basically built upon resource and capability based theory of firm (RBV).

There was exponential growth in empirical studies about influence of learning and innovation capabilities on performance. Researchers have conducted these studies in different markets and industries such as tiles, chemical, pharmaceutical manufacturing companies, electrical industries and firms from service sector which includes government agencies, NPOs, communication, transportation, and management services and educational institutions. Thus, findings of this review have more scope and practical implications for a larger reader. However, the findings of these studies are not blindly generalizable to broader aspects, because of the differences in methodology, sampling procedure and tools they used.

The empirical results show that there is positive relationship between organizational learning capability, innovation capability and organizational performance. The organizational learning capability has both direct and indirect effect on performance. The effect of learning capability on innovation capability increases the effect of innovation on performance. Organizational learning is key factor that helps organizations to improve their creativity and capabilities for innovation.

It is also found from the review literature on LIP that the relationship between learning and innovation and performance are moderated by age, size, and environmental conditions. Some studies added that environmental turbulences play a key role in the effect of innovation capability on performance. Similarly, the pattern of adoption of innovation types also influences the relationship between innovation and performance. It was found from the literature that innovation has both positive outcomes and negative outcomes such as market risk and increased cost and employees' dissatisfaction.

This review has some implications for future research. Since there are very scarce studies dealing with cross industrial studies and comparisons, this study recommends for empirical research comparing the effects learning and innovation capabilities on performance of firms from different industries. It will help make the finding generalizable and applicable in broader perspective. Most of the studies reviewed were cross sectional, hence this review suggests to fill this gap by conducting more studies by taking longitudinal data. This review also has noticed a wide gap with respect researches regarding the contingency factors that influence the link between learning, innovation and performance. There is need to advance the empirical studies from cross-sectional to longitudinal studies. Exploring these aspects will inspire the further progress of the scientific knowledge domain and industrial growth.

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