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The mediating role of an innovative culture in the relationship between absorptive capacity and technical and non-technical innovation☆

Murad Ali [a,*], Kichan Park [b,*]

[a] Department of HRM, Faculty of Economics and Administration, King Abdulaziz University, P.O Box 80201, Jeddah 21589, Saudi Arabia
[b] APSL College of Management, Inha University, 100 Inha-ro, Nam-Gu, Incheon 402-751, South Korea

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ABSTRACT

Unlike previous research, this study operationalizes the two dimensions of absorptive capacity (ACAP)—potential absorptive capacity (PACAP) and realized absorptive capacity (RACAP)—separately. This study builds and tests an integrated model to investigate the relationship among PACAP, RACAP, innovative culture (IC), and organizational innovation (OI). This study explores these relationships using a multivariate data analysis technique: partial least square (PLS), a structural equation modeling (SEM) approach along with reflective-formative type hierarchical latent variables, with data sample of 347 from a multiple industrial sector in Korea. The results suggest that PACAP and RACAP happen in sequence and influence OI directly and through the intervening variable IC. The study provides several theoretical and practical implications for further research.

1. Introduction

This study identifies four rationales. First, research on learning and innovation studies in South Korea follows a technical focus of innovation and technology. Recognition of non-technical and organizational factors such as management skills, organizational capabilities, culture, processes and routines, information, and knowledge is still necessary.

Second, Lundvall (2006) argues that no clear distinction exists between innovation management and knowledge management, and that the organizational characteristics that promote adaptive innovation promote learning. Following this notion, technological learning relates to learning in organization, and reflects the concept of absorptive capacity (ACAP) (Zahra & George, 2002). This study argues that although the technological development and innovation learning of the Korean innovation model have substantial conceptual and philosophical similarities with that of ACAP, until now, the area of ACAP has been less important with few exceptional instances (Kim, 1998). However, in South Korea, the role of ACAP in promoting innovation and technological development has a theoretical approach and no conclusive empirical evidence exists.

Third, reviewing parenting and extensive existing literatures, many scholars conduct their research to understand the process of ACAP from an external perspective (Lichtenthaler, 2009). Further research focusing on internal analysis of organizational factors such as innovative culture (IC) is crucial to understand the multidimensional nature of ACAP. Understanding the multidimensional nature of ACAP is important because the internal characteristics of the organization are crucial sources for success (Zheng, Yang, & McLean, 2010).

Fourth, despite research on how ACAP affects organizational innovation (OI), a lack exists in sufficient understanding of how firms can align the process and development of ACAP with the changes in their internal context (such as IC). This gap in ACAP and IC literature demands stronger theoretical development and tests of potential methods for improving the relationship between ACAP and IC (Škerlavaj, Song, & Lee, 2010). Although previous studies investigate the moderating role of IC on the relationship between organizational learning culture and organizational innovativeness (Škerlavaj et al., 2010), no study determines whether the use of two subsets as acquisition and assimilation (potential absorptive capacity or PACAP) and transformation and exploitation (realized absorptive capacity or RACAP) of ACAP has varying effects on OI through an intervening variable such as IC.

By addressing these rationales, this study makes three main contributions. First, unlike previous studies that focus on technical

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* Corresponding authors.
E-mail addresses: mali3@kau.edu.sa (M. Ali), kichan@inha.ac.kr (K. Park).

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aspects of OI in Korea, this study considers that a firm's ACAP is also crucial for OI. This study emphasizes empirical exploring of the multidimensional nature of ACAP in the context of South Korea.

Second, along with ACAP, this study assesses the role of culture (IC) in the relationship between ACAP and OI. The knowledge-based view of the firm considers knowledge as the most strategically significant resource of a firm because knowledge-based resources are usually difficult to imitate and socially complex (Leal-Rodríguez, Ariza-Montes, Roldán, & Leal-Millán, 2013). These scholars agree that innovation-supportive culture is essential for OI (Škerlavaj et al., 2010). Thus, managers need a framework that facilitates the influence of cultural aspects on the relationship between ACAP and OI (Leal-Rodríguez et al., 2013).

Third, this study investigates the nature of the relationship among ACAP, IC, and OI. In particular, the purposes of this study are (1) to examine the relationship between PACAP and RACAP, (2) to investigate the direct effects of PACAP and RACAP on OI (product, process, and management innovation), and (3) to examine the mediation role of IC in the relationship between ACAP (i.e., PACAP and RACAP) and OI (product, process and management) among large, medium, and small diversified firms from a multiple industrial sector in South Korea. The purposes of this study integrate three important theories of firm, which provide the theoretical framework and research model development for this study. This study analyzes the antecedent role of knowledge-based view (in this case, ACAP) in the development of resource-based view (in this case, IC) and its effect on achieving capabilities-based resources (in this case, OI). In other words, how resource-based view (i.e., IC) mediates the relationship between knowledge-based capabilities (i.e., ACAP) and capabilities-based resources (i.e., OI).

2. Conceptual development and hypotheses

2.1. The relationship between PACAP and RACAP

Zahra and George (2002) define ACAP as "a set organization organizational routines and processes by which firms acquire, assimilate, transform and exploit knowledge to produce a dynamic organizational capability." This study employs the re-conceptualization that Zahra and George (2002) propose, which distinguishes four dimensions: acquisition, assimilation, transformation and exploitation, and at the same time, classifies these into two components: "potential absorptive capacity" (PACAP) and "realized absorptive capacity" (RACAP).

Acquisition and assimilation of PACAP initiates a firm's capability to value and acquire external knowledge but does not guarantee the exploitation of this knowledge. Transformation and exploitation of RACAP reflects the firm's capability to leverage the already absorbed knowledge (Zahra & George, 2002).

Lee and Wu (2010) suggest that knowledge alone is not enough; firms need tools to exploit and appropriate this knowledge embedded in new OI. Therefore, acquiring and assimilating knowledge may occur but does not guarantee the efficient transformation and exploitation of knowledge (Leal-Rodríguez et al., 2013). Furthermore, PACAP and RACAP have different capabilities and roles, yet their effect is not individual, but rather complementary. PACAP and RACAP are distinct concepts, and consequently may draw on different structures, objectives, and strategies. A firm may have capability to acquire and assimilate the external knowledge but this capability does not guarantee the transformation and exploitation of this knowledge. PACAP and RACAP coexist and contribute in the development of OI. Consistent with this notion, this study argues that the acquisition and assimilation of PACAP, and transformation and exploitation of RACAP happen in a sequence.

H1. Higher levels of acquisition and assimilation of PACAP lead to higher levels of transformation and exploitation of RACAP.

2.2. The relationship between PACAP and OI

Zaltman, Duncan, and Holbeck (1973) define innovation as "any idea, practice, or material artifact perceived to be new by the relevant unit of adoption". This classifies innovation into three categories; that is, product, process, and managerial and administrative. Product innovation refers to the introduction of new products or services to meet external user or market needs (Damanpour, 1996). Product innovation relates to all other categories of innovation: radical, incremental, and systems innovation (Liao, Fei, & Chen, 2007). Process innovation refers to the introduction of new elements into the firm's production or service process to produce better products or provide better services (Damanpour, 1996). Process innovation relates to technological or technical innovation. Managerial innovation refers to the introduction and implementation of new managerial regulations, programs, and systems in the firm for performance improvement. Managerial innovation relates to non-technological or non-technical innovation such as administrative, organizational-structural, people, and managerial system innovation.

Research results show a close relationship between ACAP and technological innovation (Fabrizio, 2009). However, the relationship between ACAP and non-technical innovation needs further examination. Organizations increasingly rely on external knowledge to foster OI and enhance their performance (Lichtenthaler, 2009). ACAP is a dynamic capability in knowledge-based competition that allows a firm to transform knowledge into new products, services, or processes to support organizational innovation (Cepeda-Carrion, Cegarra-Navarro, & Jimenez-Jimenez, 2012; Leal-Rodríguez et al., 2013). PACAP makes a firm capable to acquire new external knowledge and assimilate knowledge obtained from external sources into new product, process, and management innovation.

H2a. Higher levels of acquisition and assimilation of PACAP lead to higher levels of product innovation.

H2b. Higher levels of acquisition and assimilation of PACAP lead to higher levels of process innovation.

H2c. Higher levels of acquisition and assimilation of PACAP lead to higher levels of management innovation.

2.3. The relationship between RACAP and OI

Although PACAP helps a firm to acquire external new knowledge, PACAP does not guarantee the exploitation of this new knowledge. RACAP plays an important role in exploiting the new knowledge and finally helps the firm to create value. RACAP involves transforming and exploiting the acquired and assimilated knowledge by incorporating that knowledge into the firm's operations, thereby improving the firm's OI. PACAP affects OI through management flexibility and development of new resources and capacities, but RACAP does so through the development of new products and processes (Camisón & Forés, 2010). Following this discussion, PACAP and RACAP differ conceptually and both may have different goals and roles (Leal-Rodríguez et al., 2013). Nevertheless, PACAP and RACAP are not identical, but they are interdependent and mutually supportive. According to these arguments, and following prior ACAP research (Cepeda-Carrion et al., 2012; Leal-Rodríguez et al., 2013; Lev, Fiegenbaum, & Shoham, 2009; Yeoh, 2009), this study argues that RACAP affects OI.

H3a. Higher levels of transformation and exploitation of RACAP lead to higher levels of product innovation.

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