



Human resource management for learning through knowledge exploitation and knowledge exploration: Pharmaceuticals in Mexico

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ARTICLE INFO

Article history:

Received January 2010
Received in revised form June 2011
Accepted November 2011
Available online 8 December 2011

JEL classification:

O32, O54, L65

Keywords:

R&D
Learning and innovation
Human resource management
Pharmaceuticals
Mexico

ABSTRACT

This paper investigates the influence of human resource management practices on the likelihood that a firm performs in-house R&D. R&D is broadly interpreted as learning—a mechanism promoting absorptive capacity and supporting technology capability-building. Firms can choose between two learning strategies: they can exploit existing knowledge, or perform more complex explorations and acquire new knowledge. Different knowledge requirements associate with distinct R&D outcomes with varying degrees of novelty for the firm. Findings are supported with evidence from the pharmaceutical industry in Mexico. The analysis reveals positive linkages between human resource management practices and learning at firm level. The relationship is contingent on factors such as expected R&D outcomes, or the novelty of the knowledge required by the firm. The provision of training revealed the more consistent, positive influence on the likelihood that pharmaceuticals firms perform R&D in Mexico.

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1. Introduction

Literature on the linkages between human resource management and innovation performance at firm level is growing. Empirical work stems mostly from surveys of firms in developed countries. Scholars have addressed the extent to which sets of new and dynamic work practices influence innovation (Barton and Delbridge, 2001); the effects of distinct forms of labor flexibility on innovation performance (Michie and Sheehan, 1999, 2003), and the complementary relationships between human resource management practices underpinning innovation (Laursen and Foss, 2003). Research on the organization and learning

of agents involved in new product development is likewise significant (Lund, 2004a,b).

Available literature documents positive relationships between human resource management and innovation performance at firm level. The influence of such practices varies according to the technological dynamics of different industries (Laursen, 2002; Laursen and Foss, 2003), establishment sizes and occupations (Lorenz and Valeyre, 2006), or the way national environments determine learning at individual and organizational levels (Arundel et al., 2007). Still missing, however, is a better understanding of mechanisms to explain such relationships (Laursen and Foss, 2003; Chung-Jen and Jing-Wen, 2009), and a consistent theory on what Delery (1998) termed the “transmission mechanism” from human resource management to innovation performance.

Explaining how and why human resource management underpins innovation introduces innovation scholars into the more ample debate about how and why such

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practices influence firms' performance more generally. According to Boseli et al. (2005) and Combs et al. (2006) huge challenges stem from the diversity in the number and possible definitions of indicators on human resource management practices, together with the distinct multidisciplinary approaches to research. Arguably research in the field needs to be fine-tuned, specifically in the way the issues at stake are addressed. Lorenz and Wilkinson (2003) assert that researchers frequently assume linear relationships—from adoption of specific sets of management practices to innovation; leaving little room for more heterogeneous organizational strategies within single industries. It is also customary to look at innovation outcomes—products/processes; and their degrees of novelty—radical/incremental. Somewhat underestimated is the study of the latent processes associated with the organization of people involved in innovation.

Methodologically consideration of the intermediate latent processes linking human resource management to a firm's performance is familiar for management scholars. Sternberg et al. (1997), Amabile (1997) and Mumford (2000), for instance, document how human resource management practices affect creativity and creative thinking. Relatedly Cohen and Levinthal (1989, 1990), Wright et al. (2001) and Chung-Jen and Jing-Wen (2009) assert that human resource management helps to capture and mobilize knowledge residing within and outside organizations.

From the above, this paper enquires about the intermediary factors that link human resource management to innovation. In particular it looks at learning processes supporting absorptive capacity, and the development of innovation capabilities by individuals and, ultimately, organizations. Learning arises from systematic performance of R&D by the firm. In such a way the paper grants research on human resource management practices and innovation greater relevance from a development perspective. White (2002) stressed the pertinence to understand how such practices contribute to research and other technological capabilities, particularly in developing countries. In his view, accumulated capacities can erode because of inadequate or poor management of people.

To the best of our knowledge, this paper stems from one of the first systematic studies on the influence of human resource management over learning through R&D in developing countries. Based on literature on knowledge exploitation and knowledge exploration, the hypothesis is that the contribution of human resources management to learning depends on factors such as the novelty of the knowledge required, and the expected outcomes from in-house R&D.

Empirical evidence refers to pharmaceutical firms in Mexico. In addition to being one of the most advanced developing economies, the country is the world's ninth pharmaceutical market and the second in Latin America. As such, it has strong, although poorly realized potential to contribute to pharmaceutical innovation. Lack of sufficiently experienced and well trained workforce remains major bottleneck (Guzmán, 2005). Focus on the pharmaceutical industry in Mexico also helps to illustrate the importance of carefully considering the contexts in which human resource management practices work.

Macroeconomic conditions, the social environment around R&D, or even how countries contribute to innovation in specific industries dictate not only what is possible and feasible, but what can be expected from human resource management. Better understanding of the organizational practices around pharmaceutical R&D can inform strategies to support the development of human resources for the industry in Mexico and similar countries.

The paper proceeds as follows: Section 2 brings together literature on human resource management and learning; the case of pharmaceuticals R&D in developing countries illustrates the discussion. Section 3 characterizes the specific management practices included for the analysis: training, remuneration, and worker's participation in decision making; these practices are expected to enhance individuals' and thereby, organizational learning. Section 4 presents the data, defines variables and the corresponding research strategy. Empirical results are provided in Section 5. Finally, Section 6 contains the discussion and conclusions.

2. Human resource management and learning through R&D

This paper equates learning with absorptive capacity and capability-building processes by the firm. The literature documents the contribution that organizational practices, relating to R&D and innovation, can make toward the success of firms. Such practices assist in continuous efforts to mobilize and organize resources that firms have at hand. In the case of Japan, for example, Odagiri (1998) highlighted the importance of building absorptive capabilities, making efforts in training and entrepreneurship and gaining sound scientific and technological understanding; including mastering the production and management of skilled personnel.

Hemmert (1998) further underscored human resource management strategies to explain how Japanese firms have dealt with changing, often adverse, macroeconomic environments, and the challenges associated with business strategies posed by continuous technological innovation. Firms constantly reorganize and restructure R&D activities in general, and the management of R&D personnel in particular. Continuous improvement in personnel management underpins innovative organizational practices to promote incentives and motivation for, and productivity in R&D. Accordingly, Lundvall et al. (2002) argued that in addition to R&D efforts, analyses of firms' innovation capabilities need to consider the influence emanating from the daily experiences of workers, engineers and salesmen, together with interactions among individuals within and outside the boundaries of a firm.

Cohen and Levinthal (1989 and 1990)'s treatment of the dual role of R&D as learning mechanism links human resource management to R&D. R&D generates new information and knowledge underpinning searches for new market and technological opportunities through innovation. R&D is equally relevant for assimilating and exploiting existing information and knowledge. In other words, it helps to build absorptive capacity by tapping existing knowledge. The authors further distinguished between

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