

***EXPLORING THE ROLE OF LEARNING
CAPABILITIES IN INNOVATION-BASED
COMPETITIVE STRATEGY***

Theme: Strategy, Competitiveness and Learning

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Abstract

Although the literature on the role of learning from external and internal sources in the innovation process has grown in significance over the last few decades, prior research has failed to conceptualise these activities as organisational capabilities having potential to contribute to the competitive strategy of the firm. Similarly, past innovation research has been biased toward technological innovation and sustained competitive advantage has been operationalised poorly. This paper examines the role of internally focused and relational learning capabilities in innovation-based competitive strategy. Premised on the capability-based theory of sustained competitive advantage the paper argues that entrepreneurial firms pursuing organisational innovation-based competitive strategy build and nurture distinctive capabilities in relational learning and internally focused learning and these capabilities create competitive advantage. Data obtained from 324 manufacturing firms largely support the theoretical framework. Implications for the theory of competitive strategy and directions for further research are suggested.

Introduction

The literature suggests that learning processes are critical antecedents of the innovation process and it is argued that firms pursuing innovation must maintain a balance between learning from external (exploration) and internal sources (exploitation). Too much reliance on the former is unlikely to lead to higher-order learning, whereas too much reliance on the latter is expensive and may produce too many underdeveloped concepts and ideas (March 1991). Although the literature on learning and innovation has grown in significance over the last few decades, the literature examining the role of externally focused and internally focused learning capabilities on innovation-based competitive strategy has been limited. There are several inadequacies in past research. The innovation research has been biased toward technological innovation whilst there is evidence to suggest that both technological and non-technological innovations lead to competitive advantage. Although the role of knowledge acquired through external and internal sources in innovation has been widely examined, no attempt has been made to conceptualise them as learning capabilities having potential to contribute to the innovation-based competitive strategy. Similarly, literature reflects the need for comprehensive measures of organizational innovation and sustained competitive advantage. This paper examines the role of relational learning and internally focused learning capabilities in innovation-based competitive strategy. Premised on the capability-based theory of sustained competitive advantage, the paper argues that entrepreneurial firms pursuing innovation-based competitive strategy build and nurture distinctive capabilities in relational learning and internally focused learning. The paper contributes to theories of organizational learning and competitive strategy by refining and testing measures of entrepreneurship, learning capabilities, organizational innovation and sustained competitive advantage (SCA). The links between these constructs are explored and it is argued that entrepreneurship and relational and internally focused learning capabilities are important antecedents of innovation-based competitive strategy.

This paper proceeds as follows. First, the theory of sustained competitive advantage is examined focusing on the role of distinctive capabilities in innovation-based competitive strategy. Second, the conceptual framework describing the focal constructs and theoretical relationships intended to be tested are discussed. Third, the method used to test the hypotheses is discussed. Next, the results, based on analysis of data collected from 324

manufacturing firms, are presented. The paper concludes by discussing theoretical and practical implications of research, identifying limitations of the study and providing directions for future research.

Distinctive capabilities and competitive advantage

The capability-based theory suggests that a firm can achieve competitive advantage through distinctive capabilities possessed by the firm (Grant, 1991; Prahalad and Hamel, 1990; Hayes et al. 1996) and that the firm must constantly re-invest to maintain and expand existing capabilities in order to inhibit imitability (Mahoney, 1995). In exploring this model we concur with recent contributors who distinguish capabilities from resources (Grant, 1991; Teece, Pisano and Shuen, 1997). A resource-based strategy is often not enough to support a significant competitive advantage. Winners in the global marketplace have been firms that can demonstrate timely responsiveness and rapid and flexible product innovation (Teece, Pisano and Shuen, 1997). Resources do not exclusively determine what the firm can do and how well it can do it. A key ingredient in this relationship is entrepreneurial key decision-maker of the firm (Grant, 1991). In the current study, organizational distinctive capabilities are defined as the organization's capacity to perform a range of organizational routines (sequences of coordinated actions) for the purpose of delivering products and services to the market in a manner that outperforms competitors.

The capability-based theory differs from other competitive strategy models in that the framework recognizes the crucial role played by the entrepreneurial key decision-makers of the firm in building and sustaining a competitive advantage. Capabilities on which competitive advantages are founded do not merely accrue to the firm (from a good 'fit' with industry or environmental requirements), but are developed consciously and systematically by the wilful choices and actions of the firm's strategic leaders (Lado et al., 1992). The competitors' inability to duplicate firm's distinctive capabilities (Grant, 1991; 1996) or the 'capability differential' on which competitive strategy is founded (Coyne, 1986; Hall, 1993) is suggested as the key source of sustainability under the capability theory of competitive advantage.

Links among organizational learning, capabilities, innovation and competitive advantage revisited

Porter (1990) suggests that firms create competitive advantage by conceiving new ways to conduct activities in the value-chain for delivering superior value to the customers, which is an act of innovation. This suggests that, (a) innovation and competitive advantage process are closely interconnected, and (b) organizational innovation is a key strategic option to gain competitive advantage. Firms can explore better ways of performing the activities of the value-chain only through greater learning. There are two learning levels that lead to organizational change: adaptive learning and generative learning. Generative learning, in contrast to adaptive learning, occurs when the organization is willing to question long-held assumptions about its mission, customers, competitors, and strategy (Argyris, 1977; Senge, 1990). Importantly, generative learning is a potential source of SCA (Sinkula, 1994; Slater and Narver, 1995). Generative learning involves changing the firm's knowledge base, firm-specific capabilities and routines, and is analogous to the firm's intellectual skills. The literature suggests the need for coupling entrepreneurship with organizational learning efforts

to understand the organizational processes that lead to generative learning (Slater and Narver, 1995; Webster, 1994).

Some organizations acquire knowledge from their external environment; other organizations generate or create knowledge internally. Many organizations rely on both orientations or processes to varying degrees (Dibella, Nevis and Gould, 1996). March (1991) suggests that maintaining a proper balance between externally focused and internally focused learning is a prerequisite for reaching generative learning. However, both external and internal learning efforts compete for firm's scarce resources. 'As a result, organizations make explicit and implicit choices between the two' (March, 1991: 71). This suggests that the extent to which an organization possesses capabilities for learning from external and internal sources may depend on the strategic learning choices of the firms.

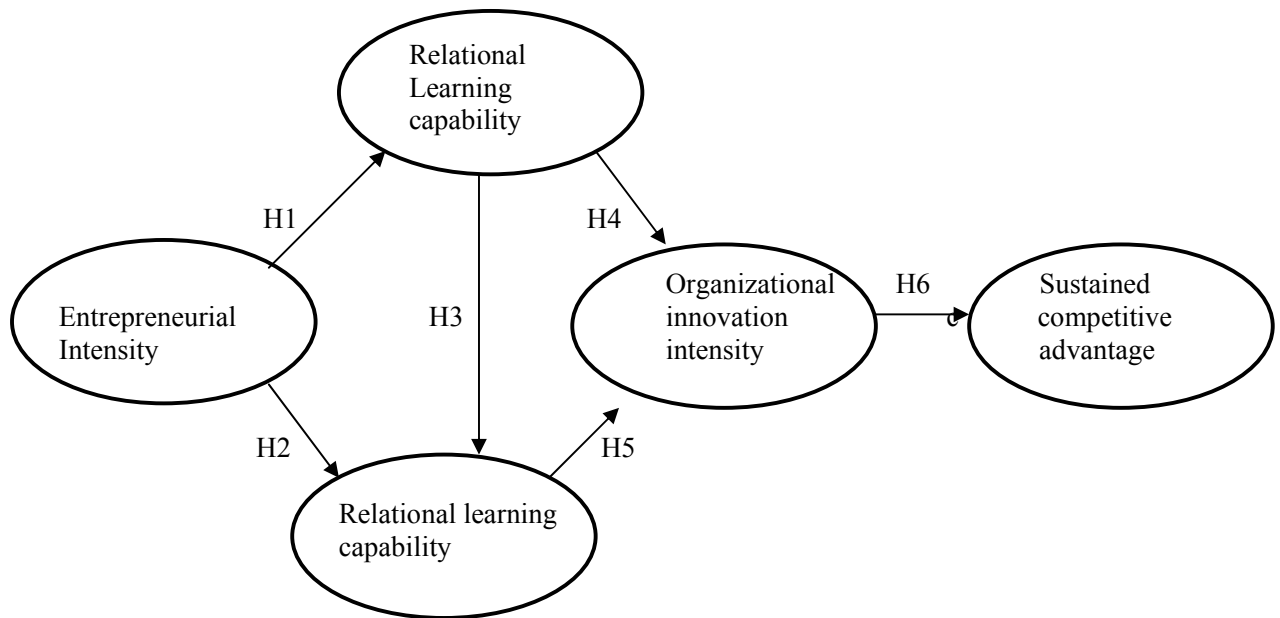
The degree of innovation reflects the extent of new knowledge embedded in an innovation (Dewar & Dutton, 1986; Ettlie, 1983). Single-loop learning is associated with incremental innovations, whereas double-loop learning is associated with discontinuous or radical innovations (McKee, 1992). 'Radical and incremental pertain to distinctions along a theoretical continuum of the level of new knowledge embedded in an innovation' (Dewar & Dutton, 1986: 1423). Radical innovations imply that a firm is engaging in generative learning levels, the highest level of organizational learning.

Conceptual framework

The foregoing discussion suggests that organizational learning, capabilities, innovation and sustained competitive advantage concepts are interconnected. Innovation is conceptualised in this paper broadly, incorporating technological as well as non-technological innovation. As the organizational learning approaches to innovation suggests, organizational innovation is process in which new knowledge acquired by the organization is integrated into the value creating activities of the organization. Therefore learning capabilities are antecedents of organizational innovation.

The conceptual model used in this research is presented in Figure 1. The model suggests that entrepreneurial firms pursuing innovation as a key thrust in their competitive strategy build and nurture distinctive capabilities in relational learning and internally focused learning. In turn, these two learning capabilities lead to higher organisational innovation intensity and sustained competitive advantage. In the forthcoming section the interrelationships among are examined addressing inadequacies in the conceptualisation of these constructs.

Figure 1 – Conceptual model with hypothesized relationships



Entrepreneurial intensity

The literature suggests a positive association between ‘entrepreneurship’ and the growth-oriented efforts of the firm (Khandwalla, 1977). In this paper entrepreneurship is operationalised using the firm-behaviour model of entrepreneurship, which suggests that entrepreneurial firms display innovativeness, proactiveness and risk-taking propensity in their strategic decision-making (Covin and Slevin 1986). *Innovativeness* refers to a corporate environment that promotes and supports novel ideas, experimentation and creative processes that may lead to new products, techniques or technologies. *Risk-taking* reflects the propensity to devote resources to projects that pose a substantial possibility of failure, along with chances of high returns. *Proactiveness* implies taking initiative, aggressively pursuing ventures and being at the forefront of efforts to shape the environment in ways that benefit the firm (Covin and Slevin, 1989). Proactiveness relates to aggressive posturing relative to competitors, with emphasis on execution and follow-up of tasks in pursuit of the firm’s objectives (Knight, 2001). Based on these behavioural characteristics, in this paper entrepreneurship is conceptualised in terms of a continuum, which reflects the ‘entrepreneurial intensity’ of the firm.

Internally focused learning capability

Internally focused learning capability reflects the capacity of the firm to generate technological and non-technological knowledge through internal sources. Research and development (R&D), a commonly pursued internal learning activity in manufacturing firms, is a strategic search process that aims to generate cumulative technological advances (Durand, 1988; Hyvarinen, 1990). There is ample evidence to suggest that R&D is essential for effective innovation (eg. Kim, Song & Lee, 1993). Internally focused learning capability

is defined as the capacity of the firm, relative to its customers, to develop technological and non-technological knowledge through internal sources and to disseminate, unlearn, and use this knowledge for organizational change. This definition moves beyond the scope of traditional R&D activities. Firms possessing internally focused learning capability pursue all forms of technological and non-technological experimental learning activities aimed at developing the internal knowledge base of the firm.

Relational learning capability

Relational learning capability reflects the firm's capacity to exploit external sources of knowledge. Many innovations result from borrowing rather than invention (March & Simon, 1958). Collaborative linkages or 'networking' improve the potential of the organization to develop innovations (Contractor & Lorange, 1988; Mowery, 1988). Increasingly, interorganizational links are thought to enhance the innovative capabilities of organizations by providing opportunities for shared learning, transfer of technological knowledge, legitimacy and resource exchange (Nohria and Eccles, 1992). Exploiting external sources of knowledge is a critical component of innovation (Cohen & Levinthal, 1990; Goes and Park 1997) and a source of competitive advantage (Dyer and Singh 1998). Building on this viewpoint, we define relational learning capability as the capacity of the firm, relative to its competitors, to acquire technological and non-technological knowledge through external linkages, and to disseminate, unlearn, and use such knowledge for organizational change. This definition makes the use of networking activity for knowledge acquisition explicit.

Although the literature examining the role of entrepreneurship in capability building activities of the firm is limited a growing number of researchers suggests that entrepreneurial firms build and nurture superior organizational capabilities. The task of creating organizational capabilities is seen as a function of the entrepreneur's roles and behaviour in gathering and using resources (Gartner and Starr, 1993; Ostgaard and Birley, 1994). Rizzoni (1991) establishes a link between entrepreneurship, organizational capabilities and innovation. He suggests a firm pursuing an innovation-based strategy accumulates specific capabilities, which distinguish the firm from its competitors and enable it to face the variability of the environment. Building on this view, we argue that entrepreneurial intensity influences relational learning and internally focused learning capabilities. The following hypotheses are advanced:

H₁: There is a positive relationship between entrepreneurial intensity and internally focused learning capability.

H₂: There is a positive relationship between entrepreneurial intensity and relational learning capability.

Internally focused learning enhances the 'absorption capacity' of the firm to acquire new knowledge and therefore is a prerequisite for acquisition of knowledge from external sources (Cohen & Levinthal, 1990). External technology sourcing strategies are seen as a means of complementing and leveraging internal capabilities (eg. Granstrand et al. 1992; Chatterji, 1996). Based on this discussion following hypothesis is advanced.

H₃: There is a positive relationship between internally focused learning capability relational learning capability.

Organizational innovation intensity

Although the literature suggests that innovation should be conceptualised to cover a broad range of activities (Schumpeter, 1934; Porter, 1990; Rothwell, 1992), past innovation research is biased toward technological innovation. However, there is evidence to suggest that firms undertake both technological and non-technological innovations and all such innovations lead to competitive advantage (AMC, 1995; Hyvarinen, 1990). Therefore, in this study innovation is conceptualised broadly to incorporate both technological and non-technological innovations.

Our earlier discussion suggests that both relational and internally focused learning lead to organizational innovation. Accordingly the following hypotheses are advanced.

Hypothesis₄: There is a positive relationship between internally focused learning capability and organizational innovation intensity.

Hypothesis₅: There is a positive relationship between relational learning capability and organizational innovation intensity.

Sustained competitive advantage

Competitive advantage can be conceptualised as a superior ‘marketplace position’ that captures the provision of superior customer value and/or the achievement of lower relative costs, which results in market share dominance and superior financial performance (Hunt and Morgan, 1995). Much of the past research uses superior financial performance or ‘rent’ as an indicator of competitive advantage (Porter, 1990). Sustained competitive advantage was believed to be simply a competitive advantage that lasts a long period of calendar time (Jacobson, 1988; Porter, 1990). These views, particularly those advocating the use of financial indicators, have attracted criticism from recent literature (Barney, 1991; Day and Wensley, 1988). The literature in general reflects the need to conceptualise this construct as incorporating well-founded indicators of sustainability of competitive advantage. We concur with Day and Wensley (1988) who do not totally discard financial indicators of sustained competitive advantage but suggest strengthening financial indicators with comprehensive indicators of market advantages. One of the key ‘competitor-cantered’ methods of measurement is assessing the distinctive capabilities on which advantages have been founded (Day and Wensley, 1988). Premised on the capability-based model, this construct is conceptualised as: whether the firm has gained superior financial and market advantages (Day and Wensley, 1998) and whether it is possible for competitors to duplicate the firm’s competitive strategy (Barney, 1991; Grant, 1991) and distinctive capabilities on which advantages have been founded (Grant 1991; Hall 1993).

Our earlier discussion suggests that organizational innovation and the competitive advantage process are closely inter-connected. Although past literature has primarily focused on technological innovation the growing yet fragmented evidence from the international marketing literature suggests that organizational innovation leads to superior performance. Knight (1998) found that born global firms use innovative marketing techniques to achieve superior international market performance. Similarly, Anderson (2000) found evidence to support Schumpeter’s (1934) broader conceptualisation of innovations. The international entrepreneurs he studied not only undertook new product development but also introduced

innovative production methods and vigorously sought for new sources of procurement of materials. Based on this discussion following hypothesis is advanced.

Hypothesis₆: There is a positive relationship between organizational innovation and sustained competitive advantage.

Research methodology

Data collection

The sampling frame for the study was a list of 1,272 manufacturing firms in a regional area. The sampling method succeeded in providing observations that varied greatly, at least in terms of firm characteristics. The firms represented in the sample varied in size, as measured by annual sales (mean = \$14 million; standard deviation = \$44 million), number of employees (mean = 65 employees; standard deviation = 177 employees). On average, the firms in the sample had been operating for around 24 years (standard deviation = 21.7 years). Approximately 58 percent of firms in the sample were competing in export markets for nine years on average (standard deviation = 8.1 years).

Key informants

In this study CEOs were used as the key informants. CEOs have been used as key informants in similar research on innovation-based competitive strategy (Li and Calantone, 1998). A survey packet including a personalized cover letter and self-administered questionnaire was sent to the CEO of each firm. With the key informant approach, data is collected from a senior manager or a group of senior managers on information pertaining to the whole organization (or business unit). It is assumed that such senior managers have the best vantage point for viewing the entire organization and, thus, will provide the most accurate responses. Data on strategy gathered from middle and lower managers have questionable validity because these managers typically do not have access to information about how the total system operates (Kotha & Vadlami, 1995). Similarly researchers have found that CEOs provide data as reliable and valid as multiple informants (Zahra and Covin, 1993). The job titles given by the respondents in the field study indicated that the sample was in fact made up of senior managers and top decision makers. As an additional measure, as suggested in Kumar, Stern and Anderson (1993), a self-assessment of knowledgeable ability was adopted. The mean value was greater than 5 thus showing evidence of knowledgeable ability.

Non response bias

The 326 useable questionnaires that were returned yielded a response rate of 25.6 percent. This response rate is within the range of response rates of recent field survey research in marketing (e.g. Lusch and Brown 1996). Missing values were treated using listwise deletion, which resulted in an effective sample size of 324 observations. Nonresponse bias was assessed using an extrapolation method that compared waves of early and late respondents (Armstrong and Overton 1977). This procedure showed no significant differences between early and late respondents, which suggests that nonresponse bias may not be a problem.

Measures

All of the theoretical constructs in the conceptual model are measured using multi-item scales. The *entrepreneurial intensity scale* captures the extent to which the firm's strategic leaders are innovative, proactive and risk seeking. The specific items used are derived from

Covin and Slevin (1986) and Naman and Slevin (1993). The measures for the two distinctive *organizational learning capabilities* encompass the four learning activities that constitute the firm's overall organizational learning processes (Huber, 1991; Schein, 1990). These activities are knowledge acquisition, knowledge sharing, knowledge utilization and unlearning. A key element of the capability constructs is the extent to which a particular capability has been instrumental in outperforming competitors. This approach to measure the distinctiveness of organizational capabilities is based on the work of Snow and Hrebiniak (1980). The *internally focused learning scale* captures the extent to which the firm generates knowledge through internal experimental and experiential sources of learning. High scores on this scale suggest the firm's internally focused learning capabilities are in some way distinctive. The current study expands on the research and development capability measures developed by Atuahene-Gima (1993). High scores on the *relational learning scale* indicate that the firm possesses distinctive capabilities in the acquisition of technological and non-technological knowledge through links formed with external organizations. The relational learning scale was developed on the basis of past literature (e.g., Cohen & Levinthal, 1990; Rothwell, 1989). The *organizational innovation intensity* scale captures the extent of the firm's product, managerial, and marketing innovations. High scores on the innovation intensity scale indicate that the firm has introduced radical innovations in its product, managerial, and marketing systems. This measure incorporates both the degree and types of innovation. The *sustained competitive advantage scale* captures the extent to which the firm's innovations and distinctive capabilities resist erosion by competitors' efforts. The composite measure developed for this study is based on Day and Wensley's (1988) view that measures of SCA should reflect more than simply financial performance. High scores on the competitive advantage scale suggest that innovations have enabled the firm to achieve superior market advantages and competitors are unable to duplicate the firm's innovations and distinctive capabilities on which advantages have been founded.

Analytic technique

After data screening, separate congeneric measurement models for each theoretical construct were estimated using LISREL 8 (Joreskog and Sorbom, 1996). Congeneric measurement models are useful for assessing the reliability of measures and verifying unidimensionality (Anderson and Gerbing, 1988). The goodness-of-fit statistics in respect of the four constructs are indicated in Table 1. Next, composite variables were created using the factor score regression weights from the congeneric measurement models. Finally, the structural model was estimated for an examination of the hypotheses. Table 1 - Goodness-of-fit statistics for the constructs

Construct	χ^2	RMSR	GIF	AGFI	RSMEA
Entrepreneurial intensity	12.251 (p=0.171)	0.0371	0.992	0.979	0.03
Relational learning capability	7.761 (p=0.170)	0.029	0.994	0.981	0.04
Internally-focused learning capability	7.423 (p=0.191)	0.026	0.994	0.983	0.038
Organizational intensity	33.253 (p=0.006)	0.0568	0.993	0.979	0.05
Sustained competitive advantage	3.842 (p=0.572)	0.0243	0.997	0.991	0.00

Results

Estimating the structural model produced a significant chi-square statistic ($\chi^2(1) = 47.217, p = .00$). However, other fit indices provided evidence of adequate fit to the sample data (goodness-of-fit index = 0.939, adjusted goodness-of-fit index = 0.931, root mean square residual = 0.072, normed fit index = 0.945, non-normed fit index = 0.872). The structural model explains 57%, 16%, 69% and 42% respectively, of the variation in internally focused learning capability, relational learning capability, organizational innovation intensity and sustained competitive advantage, providing additional support for the structural model. Standardized parameter estimates and *t*-values for the model are shown in Table 2. The results of hypothesis tests are described subsequently.

Table 2 - Standardized parameter estimates for the Structural model

Path	Parameter estimate	<i>t</i>-value
Entrepreneurial intensity → Relational learning capability	.0128	3.793
Entrepreneurial intensity → Internally-focused learning capability	0.575	16.021
Relational learning capability → Innovation intensity	0.747	7.666
Internally-focused learning capability → Innovation intensity	0.534	7.560
Innovation intensity → Sustained competitive advantage	0.583	11.713

The results indicate that both relational learning capability and internally focused learning capability are influenced by entrepreneurial intensity, supporting H₁ and H₂. Firms that are innovative, proactive and having a risk seeking posture are more likely to possess distinctive internally focused learning capabilities ($\beta = 0.575, t = 16.021$). As predicted by H₂, relational learning capability is strongly influenced by entrepreneurial intensity. Entrepreneurial firms

pursuing organisational innovation-based competitive strategy develop distinctive learning capabilities to acquire knowledge from external sources ($\beta = 0.128, t = 3.793$). The findings do not support H₃ where it was predicted that the level internally focused learning capability determines the level of relational learning capability. As predicted by H₄ and H₅ both internally focused learning capability and relational learning capability are positively related to organisational innovation intensity ($\beta = 0.534, t = 7.560$; $\beta = 0.747, t = 7.666$). Entrepreneurial firms that have excellent internally focused and relational learning capabilities are more likely to develop radical changes to products, processes, marketing methods and managerial systems. Finally, there is a strong positive relationship between organizational innovation intensity and sustained competitive advantage, supporting H₆. Organizations are more likely to sustain market advantages over their competitors where they perceive new ways of performing both technological and non-technological activities in the value-chain ($\beta = 0.583, t = 11.713$).

Discussion and implications

Collectively, the results provide substantial support for the conceptual framework. The theoretical constructs operate largely as hypothesized and explain a substantial proportion of the variation in competitive advantage. A central theme of our research is that entrepreneurial firms pursuing organisational innovation-based competitive strategy develop and nurture distinctive capabilities in relational learning and internally focused learning. The results of the study largely support this position. Although the role of knowledge acquisition through internal and external sources has been explored in the literature, prior research has failed to conceptualise these activities as organisational capabilities having potential to contribute to firm's competitive strategy. The findings do not support the hypothesis that the level of internal learning determines the extent of external knowledge acquisition. However the findings provide empirical support to the long-held view that firms must maintain a balance between learning from internal and external sources for organisational change. In this study, these two capabilities have been conceptualised broadly incorporating both technological and non-technological learning sources accessed by the firm thereby capturing all learning processes leading to organisational innovation. The study contribute to the organizational learning literature by developing and validating measures for organizational learning capabilities. Whilst there has been suggestions for a comprehensive theory of organizational learning (Shrivastava, 1983; Huber, 1991) a growing number of researchers stresses the need to develop measures for key learning constructs as a prerequisite for a theory of organizational learning (Slater and Narver, 1995).

A significant theoretical implication of the findings is that a firm's learning capability building efforts are driven its strategic choices. As noted earlier resource constraints force the organizations to make explicit and implicit choices between learning from external and internal sources (March, 1991). 'The explicit choices are found in calculated decisions about alternative investments and competitive strategies' (March, 1991: 71). This suggests that the major emphasis in the competitive strategy may guide the learning efforts of the firm. In the current study learning efforts of the firm were explored in the innovation-based competitive strategy. The findings suggests that entrepreneurial firms pursuing innovation commit more resources to internally focused learning capabilities ($\beta = 0.575, t = 16.021$) than on relational capabilities ($\beta = 0.128, t = 3.793$). In spite of this emphasis, relational learning appears to impacts more on organizational innovation ($\beta = 0.747, t = 7.666$) than internally focused learning ($\beta = 0.534, t = 7.560$).

Findings suggest that entrepreneurial intensity is an important determinant of externally focused and internally focused learning capabilities, providing support to the capability-based theory of sustained competitive advantage. Although the capability-based theory assigns a dominant role to the entrepreneurial key decision-makers of the firm this relationship has not been examined in prior research. Arguably, the framework used in this paper presents managers with a feasible path for building sustained competitive advantage. Firms striving to gain competitive advantage must build and nurture distinctive relational and internally focused learning capabilities. At the same time, however, managers should recognize that building distinctive capabilities could be an expensive undertaking (Tece, Pisano, and Shuen, 1997). The process involves first developing certain capabilities, and then selecting and refining a few of those capabilities to the point where they become the basis for competitive advantage (Hayes et al., 1996).

Past research has typically focused exclusively on the impact of technological innovation. In contrast, the current study provides evidence that innovation can be conceptualised broadly, and includes both technological and non-technological innovation. Managers should recognize that technological and non-technological sources of innovation are both important, and separately or together can impact on SCA. Prior research suggests that the components of the entrepreneurship scale used in this study are positively related to technological innovation (Covin and Slevin, 1986). In the current study, the innovation construct incorporates both technological and non-technological innovation. The findings therefore suggest that entrepreneurial firms pursue organizational innovation thus providing support to the firm-behaviour model of entrepreneurship (Covin and Slevin, 1986; Naman and Slevin, 1993).

Limitations

Though the study provides some useful insights into the role of externally focused and internally focused learning capabilities in innovation-based competitive strategy, certain limitations should be recognized. First, the study used single-informant reports to measure each of the theoretical constructs. An alternative approach would have been to combine information from multiple-informants, although the practical difficulties associated with using information from multiple-informant reports are well recognized by management researchers (Kumar, Stern, and Anderson, 1993). Second, the cross-sectional research design limits the extent to which inferences can be made about the causal ordering of variables. Replicating the study could be one way of trying to validate the results.

Directions for further research

Few firms possess all the capabilities required to achieve a competitive advantage. Arguably, developing capabilities involves a trade-off in terms of which capabilities to develop. Further research might be usefully directed towards exploring how these decisions are made. A growing number of researchers argue that a firm cannot be 'world class' in everything it does and that some of the capabilities can be outsourced. Future research might explore the role other key organisational capabilities such as marketing and manufacturing and how learning capabilities interact with them. Organizational resources have an impact on the development of capabilities (Grant, 1991) future research may explore as to how entrepreneurial small and medium sized firm overcome their resource poverty related constraints in the capability building process. Finally, further research may examine the extent to which industry characteristics moderate the relationship between innovation intensity and SCA.

Conclusion

Although the literature on the role of knowledge acquisition from external and internal sources in the innovation process has grown in significance over the last decade, few efforts have been made to operationalise these activities as organisational capabilities having potential to contribute to firm's competitive strategy. This study contributes to the capability-based theory of competitive advantage by developing measures for relational and internally focused learning capabilities, organisational innovation and sustained competitive advantage and testing the key theoretical propositions. Further, the framework used in this study captures the critical role of entrepreneurial key decision-makers in the development of learning capabilities. For practitioners, the results of the study provide a feasible path for developing competitive advantage. Focusing exclusively on technological advances ignores the many potential sources of non-technological innovation that managers can vigorously pursue to achieve SCA.

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