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DETERMINANTS OF NETWORK LEARNING - A CONCEPTUAL STUDY

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Abstract

Attention of researchers in the strategic management literature has been drawn to the phenomenon that a firm which develops an ability to learn offers an important source of competitive advantage to it. Thus the concept has been understood from a variety of angles like, levels of learning in organizations, process of learning, outcomes and barriers to learning. On the other hand, firms are increasingly being looked at from the network perspective, since it has been accepted that no organization can function in isolation and rather its existence is affected by the myriad of relationships with other firms, in which it is embedded. This gives rise to a need to understand learning in the network context. Very few studies however, are being carried out in this direction. This study aims to generate variable influencing the learning of network members and generates propositions for future research.

INTRODUCTION

The ability to learn is nowadays being considered as an important source of competitive advantage for a firm. The faster an organization learns new knowledge and puts it to commercial use, the sooner it develops a competitive edge against competing firms. This ability to learn is an intangible asset that a company can possess and its enhancement is frequently the main objective for forming a network (or alliances) with other firms. Such alliances create learning opportunities, especially if partner firms possess different experiences and capabilities. Learning from network partners is challenging for a firm because it involves creation of new knowledge or at least substantial transformation of existing knowledge. This implies that mutual learning occurs through a constructive integration of different

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inputs offered by network partners. Thus firms get an opportunity to extract the potential synergies between their respective competencies (Child et al 2006). With the coming of the 'Knowledge Economy', the role of learning in organizations has attracted a lot of research in recent past. Even in the strategic management literature, authors are trying to understand the learning processes (Argyris and Schon 1996), types of learnings (Inkpen 2002), and importance of relationships in learning (Darr et al 1995). Also there is abundant literature on individual and organizational learning, but studies on inter-organizational or network learning have started appearing very recently especially in the strategic management literature. Therefore the aim of this paper is to study the various factors that influence learning among network partners and develop propositions for future research. The paper is organized as follows – section II presents an extensive literature review on networks and learning. Section III gives the factors influencing learning among network partners and the model. And lastly section IV concludes the paper.

REVIEW OF LITERATURE AND RESEARCH OBJECTIVE

a. Networks and Learning

Increasingly, the term 'network' is being deployed to describe contemporary organizations. In normative sense it shows what organizations must become if they are to be competitive in today's business environment. Throughout the world, from advanced economies to third world countries, from small firms to large multinationals, from regional districts to national economies; more and more organizations are being characterized as networks. Researchers have been studying it in diverse fields such as anthropology, sociology, psychology; molecular biology etc. Even in Organizational behavior, Roethlisberger and Dickson (1939), described and emphasized the importance of informal networks or relations in organizations.

The study of network phenomenon is largely inspired by the fact that it focuses on relational systems as opposed to individual actors. Network analysis begins with the assumption that actors, whether they are natural persons or corporate actors, are embedded in a myriad of social relationships, and it is impossible to understand their behavior without understanding the relational context in which they function (Granovetter, 1985). In this context, the study of networks becomes important because the 'New Age Competition', is forcing the companies

to redefine their relationships with vendors, customers and even competitors, seeking more collaborative relations. Also with the tremendous growth in technological development, a new set of more disaggregated, distributed, and flexible production arrangements; as well as new ways for firms to organize their internal operations and their ties to firms with which they transact, are being evolved. And lastly, because of the development of multidisciplinary approach in understanding a phenomenon, there has been substantial growth in the study of networks (Nohria & Eccles, 1992). In an urge to gain a deeper understanding of organizations and networks, a number of studies have been conducted, for instance - researchers have studied the networks of actors in the informal structure (Callon 1986; Latour 1987; Law 1994). Others have discovered that actor connections to others in networks have effects on turnover (Krackhardt and Porter, 1985), Power (Brass, 1984), and the adoption of innovations (Burkardt and Brass, 1990). The network perspective has also been used to study relationships between organizations – studies have shown that economic relationships between organizations are embedded in networks of social relationships (Granovetter, 1985; Uzzi, 1997), many organizational activities now take place in joint ventures and alliances (Miles and Snow, 1986; Jones, Hesterly and Borgatti, 1997), communities take action through inter-organizational networks (Laumann, Galaskiewicz and Marsden, 1978; Galaskiewicz, 1989), and public policies at the local (Laumann and Pappi, 1976) and the national levels (Laumann and Knoke, 1989) are negotiated through inter-organizational networks of businesses, government agencies, interest groups and lobbyists.

Many other writers discuss network forms of organizations, leading to a great deal of ambiguity in the field. Networks can be separate and distinct forms of organizations like the ‘networks’ of Powell (1990) and the ‘hybrids’ of Williamson (1991). ‘Strategic linkages’, i.e. getting access to other firms’ strategic capabilities by creating linkages or pooling resources, are discussed by Richardson (1972) and Porter and Fuller (1986). Nohria and Garcia-Pont (1991) suggest that the ‘strategic imperative’ is sufficient to organize activity not in the market or in the hierarchy. Thus given the variety of contexts in which networks have been studied, they have been defined in a number of ways. Podolny and Page define a network as form of organization as any collection of actors ($N^3 2$) that pursue repeated, enduring exchange relations with one another and, at the same time, lack a legitimate organizational authority to arbitrate and resolve disputes that

may arise during the exchange. Johansson (2000) define a network as consisting of interconnected dyadic relationships where the nodes may be roles, individuals or organizations. However we adopt a definition proposed by Moller and Svahn (2006), which is the most comprehensive and succinct – networks are intentional interorganizational structures which firms design deliberately for specific purposes. They are coalitions of autonomous but interdependent firms that are willing to coordinate some of their actions and sometimes even to submit part of their activities and decision domains to centralized control in order to achieve benefits that are greater than any single member of the net can create independently.

In strategy literature, authors have looked at networks mainly from the perspectives of Resource based view. This perspective says that networks arise and evolve by configuring their tangible and intangible assets, skills, resources and relationships (Rugman and D’Cruz 1996). One network member provides one function which is complementary to and synergistic with the differing contributions of other members of the network.

b. Learning in Networks

In the field of strategic management, the issue of performance has always been studied with great rigor and interest. The same interest has now come to be applied to performance of networks. The networks are being explored in terms of their efficiency, learning, knowledge management and achieving sustainable competitive advantage. The debate on sustainable competitive advantage has been the most sustainable in the discipline of strategic management. Academicians, practitioners and policy makers have been repeatedly seeking a solution to the challenging question of attaining a sustainable competitive advantage. Extensive research has been done to identify the resources which can provide a sustainable competitive advantage to firms. Quite lately, learning has been realized to provide competitive advantage to firms. And organizations that are willing to learn and change faster than others are believed to have a sustainable competitive advantage. Learning in the literature is almost synonymous with change. In short, the learning organization is one that is open to change, or even more so, one that can change from within itself. Implicitly, therefore, the learning organizations develop an ability to continually learn and change (Beeby and Booth 2002).

Organizational learning has been defined as adaptive behavior of organizations over time (Cyert and March, 1963); a series of interactions between

adaptation at the individual, or subgroup level and adaptation at the organizational level (Cangelosi and Dill, 1965); the process by which organizational members detect errors or anomalies and correct them by restructuring organizational theory-in-use (Argyris and Schon, 1978); a process within the organization by which knowledge about action-outcome relationships and the effect of the environment on these relationships is developed (Duncan and Weiss, 1979); process of improving actions through better knowledge and understanding (Fiol and Lyles 1985); it happens by encoding inferences from history into routine behavior (Levitt and March, 1988); OL happens when any of its units acquires knowledge that it recognizes potentially useful to the organization (Huber 1991); and, consists of interrelating actions of individuals, that is their 'heedful interrelation' which results in a collective mind (Weick and Roberts, 1993). Asheim (1996) says that the recent research in the field of networks involves buzzwords like learning regions and learning networks, riding on the wave of organizational learning as ways to conceptualize network formation and learning implications for the participants. The literature on learning is again very huge as learning has been studied for individuals, teams, and organizations. However, very few attempts have been made to study network learning. Learning among network partners occurs when one organization causes a change in the capacities of another, either through experience sharing or by somehow stimulating innovations. Learning in a network is seen as one of the most important routes by which organizations can develop competitive advantage. Consequently the topic has received substantial research interest. Thus, even the practitioners are actively working to improve their organizations' inter-organizational learning (Ingram 2005).

In case of networks, the role of inter-organizational learning would be more useful if a network aims to achieve sustainable competitive advantage over its competing networks. This article addresses this important research gap by aiming to develop propositions characterizing the variables significantly affecting the learning process in networks.

c. Outcomes of Learning in a Network

Companies experiment with and learn from their contacts, without following strict rules of efficiency maximization. This shares some aspects with behavioral theory (Simon 1956, 1987; Cyert and March 1964) and evolutionary economics (Nelson and Winter 1982). An important aspect of these approaches is the concept

of 'bounded rationality', with companies demonstrating a satisficing behavior under conditions of imperfect knowledge. This approach also parallels some of the work in evolutionary economics that stresses the positive effect of learning behavior on company performance in a dynamic context. Silverberg and Verspagen (1994, 1996) found that, in a world of technological change, firms do not necessarily demonstrate short term optimal, efficient behavior. Instead a long-term learning oriented behavior was found to generate higher returns. Allen's 1988 analysis shows that in a dynamic economic environment, learning through various contacts pays off, as this behavior can outperform short term maximizing behavior that only concentrates on the efficiency of information transfer in existing contacts. The literature on the learning behavior of companies reveals that a dynamic environment with frequently changing conditions encourages continuous learning by companies. Environment change and exposure to new ideas is expected to extend the existing knowledge base of companies, improve their existing learning capabilities and more in particular improve their technological capabilities.

OBJECTIVES OF THE STUDY

Most research taking place in this context is to determine the importance of a range of inter-organizational relationships for network learning. While the work is answering questions about how network learning takes place, key questions remain as to the conditions and context in which network learning happens. Thus the aim of this paper is to study and generate propositions regarding the factors that influence learning among network partners.

VARIABLES INFLUENCING LEARNING IN NETWORKS

Before dealing with the variable influencing the network learning, let us look at the environmental dynamism which has been considered as an important variable influencing learning at all levels of an organization and networks. An important study in this context has been Appleyard (1996), which tested the hypothesis that in face of immense environmental turbulence, organizations may not like to share information that readily. However, the results overwhelmingly proved that higher the degree of environmental turbulence, the greater the need for the firms to share knowledge and learn from each other. The study confirmed that such learning also resulted in an ability to refine strategic plans, coordination on industry standards, and fosters regional and national innovation. Post this study; almost all

researchers have stressed the need to consider the turbulence of environment in their studies as an important determinant to understand the process of learning. Dynamic environment requires intensive, exploratory learning for which companies use a diversity of links to particular companies without maximizing the efficiency of their overall network ties. Based on our understanding of these perspectives we develop our propositions –

P1: In a dynamic environment, a learning based network will show better performance.

Given the broader context of environment, what are the variables that affect learning in case of networks, is what we shall be discussing in this section. The extensive review of literature reveals the following factors –

a. Structural Diversity –

Relatively little attention has been given to member differences in organizational affiliations, roles, or positions. With the rise in labor costs, global expansion, and corporate mergers, work groups are often used as a means for connecting members who are displaced among the network, who represent different functions – this variation is referred to as the structural diversity; because of its potential to expose members to different sources of task information, know how and feedback. Even under structural diversity, the following parameters seem to affect the efficiency of knowledge sharing. Geographical locations seem to affect the knowledge sharing and learning processes. Different actors are located at different places, they are the eyes and ears of members in different environments, and they have access to a greater variety of task related information, which can open up new opportunities for knowledge sharing (Monge et al 1985). These members have their own set of social networks outside this network, so they may have unique information about certain tasks. Another form of the structural diversity is the functional assignments, which can facilitate the integration of expertise, contribute to the successful implementation of projects, and accelerate cycle time for new product development (Eisenhardt and Tabrezi 1995, Griffin and Hauser 1992, Pinto et al 1993). Then the structure of the firms who are a part of this network, play a very important role in knowledge sharing. Structurally diverse groups can embody lateral structures in the organization such as members working in different business units (Galbraith 1994). The capability to transfer best practices within the firm is linked to competitive advantage (Szulanski 1996),

and formal integrative mechanisms (e.g. liaisons, task forces, permanent committees) have been shown to facilitate knowledge flows across the corporation (Gupta and Govindrajan 2000). Similarly having a matrix form of organization within the firm whereby the employees report through two or more command systems, result in increased communication channels and flexibility of resources. Members thus tend to exchange information faster and it spreads quickly to other parts of the organization. Having different reporting managers improves the value of knowledge sharing. The following propositions develop from this discussion –

P2: the more the firms are structurally diverse, the more is the tendency to learn from each other.

And the sub propositions could be –

P2a: interorganizational learning will result in a better performance; if the partners are geographically dispersed.

P2b: the more functionally integrated are the partners of a network more will be the learning among them.

P2c: the more the communication flow in a hierarchy within a firm, more will be the diffusion of learning.

b. Network Centrality

Proponents of a network perspective argue that the most significant aspect of an organization's environment is the set of other organizations with which it interacts and the pattern of relationships among them. These structural patterns and the positions of organizations within them have a significant impact on the degree to which organizations are able to control their own actions and influence those of others (Hardy et al 2003). A critical aspect of an organization's location in a network is its centrality – the degree to which it is directly and indirectly connected to other organizations and the degree to which other organizations are connected through it. Galaskiewicz (1979) argued that centrality is important because organizational power is not so much a function of its direct control of resources, but rather, the set of resources that actors can mobilize through their existing set of social relationships. Bourdieu (1977, 1986, 1993) has examined in some depth the relationships between positions in fields and the resources that accrue to the occupants of those positions. Within inter-organizational

networks, nodal points exist from where actors not only control the flow of critical resources, and especially information, but also shape the meanings attached to those resources. This results in a political perspective of networks, where collaboration for learning may result in the acquisition of power and influence. Particularly when partners have different goals, values and beliefs and when the distribution of power between them is unequal, collaboration for learning may mean protection of specific organizational interests. However Powell et al (1996) argue that organizations must learn how to locate themselves in the central network positions that enables them to keep pace with competitive developments. Organizations must engage in collaborative learning to increase their influence over other networks. Another aspect worth noting is that high political effects are associated with high involvement and high and medium embeddedness and vice versa. So the proposition that can be drawn from this observation is that –

P3: Networks which are highly embedded will be positively associated with learning.

c. Trust

An important contribution has been made by Granovetter (1973) which refers to the strengths of the linkages between participants. The notion of strong ties emphasizes closely textured networks of family, friends, and kin, with weak ties referring to more dispersed relationships with a range of individuals, groups and organizations. The ‘strength of weak ties’ can play a crucial role in offsetting tendencies towards local closure and introversion by providing access to wider sources of information and expertise. The generation of trust between firms, and firms and institutions, has been identified as an important intangible or relational asset (Storper 1997) that is associated with economic success in local and regional economies (Camagni 1997). In broad terms, trust can be defined ‘as the judgment one makes on the basis of one’s past interactions with others that they will seek to act in ways that favor one’s interest, rather than harm them, in circumstances that remain to be defined (Lorenz 1999). An important distinction needs to be made between ‘competence and intentions’ forms of trust (Mackinnon et al 2004). While the former refers to the belief that partners are capable of meeting their commitments, the latter refers to the belief that they intend to uphold such commitments.

Collaborative learning in a network involves aligning the economic goals

and aims of the network and the development of the social dimensions—in particular, mutual trust and commitment. Trust is the critical determinant of a good relationship (Dwyer, Schurr, & Oh, 1987). Anderson and Narus (1990) view trust as the belief that the partner will perform actions that will result in positive outcomes for the firm and not take unexpected actions that may result in negative outcomes. Moorman, Deshpande, and Zaltman (1993) define trust as the willingness to rely upon an exchange partner in whom one has confidence. They describe trust as a belief, a sentiment, or an expectation about an exchange partner that results from the partner's expertise, reliability, and intentionality. However, trust also relates to the focal firm's intention to rely on their exchange partner. Ganesan (1994) describes this as benevolence because it is based on the extent to which the focal firm believes that its partner has intentions and motives beneficial to it. A benevolent partner will subordinate immediate self-interest for the long-term benefit of both parties (Geyskens, Steenkamp, & Kumar, 1998). So the testable proposition that emerges is –

P4: higher levels of trust will have a significant positive influence on learning and knowledge sharing.

RESEARCH MODEL

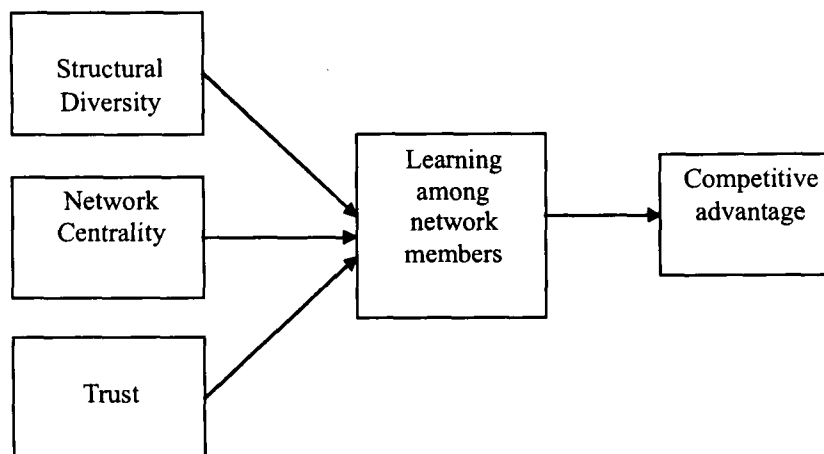


Fig 1 - Factors influencing Learning among network members

CONCLUSION

Network learning offers the advantage to a firm of accumulating and sharing knowledge. This promotes continuous interchange of knowledge assets from flows to stocks and vice-versa. It results into creation of new knowledge or substantial transformation of existing knowledge, thereby making a firm more innovative with respect to its competing firms. This study has made an attempt to unearth the factors influencing the learning among partners in a network setting. Once the factors have been identified, the next task is to operationalize them and test them in a network. Future researchers can undertake this as an area of further study. However, network learning is not entirely risk free. Network learning is a race between competitors and organizations may lose ground even as they learn. They may mis-apply the experiences learnt causing organizations to adopt practices that are not appropriate for their specific conditions. This could be an area of future research, since in the present scenario we know so little about actual organizational practices that result in organizational learning. Also the barrier to network learning can be another important area of study that can be undertaken by future researchers.

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