

Three Debates in Organizational Learning

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Abstract

Organizational learning is seen as a distinguishing characteristic that can establish competitive advantage for a firm. Though theoretical contributions have enriched organizational learning literature for over five decades, there seems to be little consensus among scholars about the definition, methodology and theoretical perspectives. The three debates that we touch upon in this study have been in existence ever since scholars started extending the boundary of organizational learning to suit their theoretical interests. Little did anyone realize that the construct itself was become so encompassing that its merit of being understood was overshadowed by the multitude of perspectives. The present study attempts to introduce a social network analysis approach to address these debates, which is relatively new to organizational learning scholars.

Keywords: organizational learning, social network analysis

Three Debates in Organizational Learning

The contemporary business environment is driven by knowledge-based competition, and organizational learning is seen as a distinguishing characteristic for any firm that is poised to establish competitive advantage (Flores, Zheng, Rau & Thomas, 2012). Multiple studies have shown that organizational learning is the key to organizational success in future (Alegre & Chiva, 2008) and a leading source of competitive advantage (Slater & Narver, 1995; de Geus, 1988; Stata, 1989). Slater and Narver's (1995) specific reference to the comment made by de Geus (1988) that the only sustainable advantage for a firm is its ability to learn faster than its competitors, has been repeatedly paraphrased by executives and scholars (e.g., Day 1994; Nonaka 1991). Alegre and Chiva (2008), in their study of ceramic tile producers, found empirical evidence for the proposition that organizational learning enhances product performance. In another empirical study, Lopez, Peon and Ordas (2005) found a positive relationship between organizational learning and both competitiveness and innovation. Based on their study of 271 manufacturing firms, Tippins and Sohi (2003) showed that organizational learning acts as a mediator between information technology competency and firm performance.

Despite the fact that scholars have acknowledged a positive relationship between organizational learning and improved performance, "understanding organizational learning has been almost as elusive" (Inkpen & Crossan, 1995, p.597) remains true. Bapuji and Crossan's (2004) extensive review of organizational learning literature ends with the observation that "a comprehensive model of the internal and external factors that facilitate organizational learning is not yet available," and goes on to further caution that "in the absence of vibrant research on the core learning phenomenon, research that adopts a learning perspective could be using outdated and unrelated concepts" (p.411). Adding to the woes, scholars across disciplines (eg. sociology,

psychology, management) study organizational learning from their own perspectives and this has led to a cacophony of voices, approaches and prescriptions (Crossan, Lane & White, 1999). In short, though theoretical contributions have enriched organizational learning literature for more than five decades, there seems to be little consensus among scholars about the definition, conceptualization and methodology of organizational learning (Crossan, Lane & White, 1999; Tsang, 1997).

The construct 'Organizational Learning' owes its origin to the debates between economists and behaviourists in the early 1950's (Schulz, 2002). Subsequent to the Second World War, the economic schools like Neo-Keynesian rose to prominence and dominated much of the discourses on policy matters that were meant to revive the bleeding economy. The behaviourist faction consisting of March, Cyert and Simon strongly rejected this increasing dominance and were of the view that the economic models were overly simplistic and contradicted empirical evidence. March and Simon (1958) in their seminal book "Organizations" successfully refuted the economists' claim that organizational decision outcomes were uniquely determined by environmental constraints. In their book "A behavioural theory of the firm", Cyert and March (1963) challenged the critical assumptions of profit maximization and perfect information, that were the life and blood of neo-classical economists. Cyert and March (1963) were the first to introduce the idea of "organizational learning", whereby they proposed that organizations can also learn from their experience in the same way individuals learn from their experience. Organizational learning was the result of adaptive behaviour over time and organizations shifted their goals and sometimes changed their procedures to suit their experience. Later studies tried to distinguish between adaptive learning and proactive learning. Adaptive learning was seen as a response to environmental changes and thereby, more automatic and less cognitive. Fiol and

Lyles (1985) defined adaptive learning as “the ability to make incremental adjustments as a result of environmental changes, goals, structures, or other changes” (p.811). Proactive learning was more planned and made on a willful basis rather than a simple reaction to environmental changes. For Levitt and March (1988), organizational learning was “routine-based, history-dependent and target-oriented” (p.336). They advocated that organizations learnt by translating inferences from history into routines, which in turn guided their behaviour. Huber (1991) was credited with conceptualizing organizational learning different from his predecessors (eg. Fiol & Lyles, 1985; Levitt & March, 1988). According to him, “an organization learns, if any of its units acquires knowledge that it recognizes as potentially useful to the organization” (Huber, 1991, p.89). He defined organizational learning in terms of four subconstructs – knowledge acquisition, information distribution, information interpretation and organizational memory. Knowledge acquisition was the process through which the firm acquires knowledge from internal and external sources. Information distribution involved disseminating information to members in the organization and information interpretation referred to making sense of the information at hand. Organizational memory meant storing knowledge in repositories for future use (Huber, 1991). The following table shows the chronological listing of different definitions of organizational learning put forward by learning scholars.

Definitions of OL

Author	Definition
Cangelosi & Dill (1965, p.200)	“Organizational learning must be viewed as a series of interactions between adaptation at the individual or subgroup level and adaptation at the organizational level”.
Argyris & Schon (1978, p. 116)	“A process of detecting errors and correcting errors”.
Fiol & Lyles (1985, p.803)	“Organizational learning means the process of improving actions through better knowledge and understanding.

Levitt & March (1988, p.319)	Organizational learning is viewed as routine-based, history-dependent, and target-oriented”.
Huber (1991, p.89)	“an entity learns if, through its processing of information, the range of its potential behaviors is changed... an organization learns if any of its units acquires knowledge that it recognizes as potentially useful to the organization”.
Watkins & Marsick (1993, p.375)	“when the organization has developed better systems for error detection and correction; changed the mental models of its members to new ways of doing business; changed its organizational memory by changing some part of how we encode memory (the management information system, the budget, policies and procedures, etc.); unlearned old ways of thinking, or has learned how to capture and encode knowledge latent in experience”.
Sinkula (1994, p.35)	“The organizational learning process is viewed as a cyclical one in which individuals' actions lead to organizational interactions with the environment, the environment responds, and environmental responses are interpreted by individuals who learn by updating their beliefs about cause-effect (i.e., action-response) relationships”.
Slater & Narver (1994, p.63)	“Organizational learning is the development of new knowledge or insights that have the potential to influence behavior”.
Crossan, Lane & White (1999, p. 523)	“Organizational learning involves a tension between assimilating new learning (exploration) and using what has been learned (exploitation). Organizational learning is multi-level: individual, group, and organization. The three levels of organizational learning are linked by social and psychological processes: intuiting, interpreting, integrating, and institutionalizing”.
Garvin (2000, p.33)	“takes place in and through interaction with and between a number of people”.
Templeton, Lewis & Snyder (2002, p.189)	“Organizational learning is the set of actions (knowledge acquisition, information distribution, information interpretation, and organizational memory) within the organization that intentionally and unintentionally influence positive organizational change”.
Crossan & Berdrow (2003, p.1089)	“Organizational learning is seen as a means to develop capabilities that are valued by customers, are difficult to imitate, and hence contribute to competitive advantage”.
Lopez, Peon & Ordas (2005, p.228)	“Organizational learning can be defined as a dynamic process of creation, acquisition and integration of knowledge aimed at the development of resources and capabilities that contribute to better organizational performance”.
Chiva & Alegre (2005, p.52)	“organizational learning to be an efficient procedure to process, interpret and respond to both internal and external information of a predominantly explicit nature”.
Schilling & Kluge (2008, p.2)	“an organizationally regulated collective learning process in which individuals and group-based learning experiences concerning the improvement of organizational performance and/or goals are transferred into organizational routines, processes and structures, which in turn affect the future learning activities of the organization’s members”.
Kreiser (2011, p.1028)	“Organizational learning occurs as a result of two firm-level processes: (1) the external acquisition of knowledge-based resources that preexist outside

of the firm's boundaries, and/or (2) the internal integration and exploitation of these knowledge-based resources in a manner that creates new knowledge within the firm".

The organizational learning literature has grown voluminous by the enriching theoretical debates that have spurred a wide web of scholarly conversation among organizational learning scholars. Some of the major debates are discussed here in relation to their significance for this study. The cognitive vs. behavioural debate was the first of its kind that tried to answer whether organizational learning occurred when new insights were acquired or when an accompanying change in behavior was followed (Fiol & Lyles, 1985; Easterby-Smith, Crossan & Nicolini, 2000). It becomes evident that the cognitive view has dominated the organizational learning literature when one examines some of the most cited studies on organizational learning. For example, "learning need not result in observable changes in behaviour" (Huber, 1991, p.89) and "change resulting from learning need not be visibly behavioural" (Friedlander, 1983, p.194). The cognitive view considers learning as a combination of various mental processes (Kim, 1993). Among them, the first step towards organizational learning is information acquisition (Walsh & Ungson, 1991). It indicates access to information resources (Huber, 1991). A cross-comparison of 'information acquisition' in organizational learning literature and 'exploratory learning' (March, 1991) in strategy literature reveals certain similarities in their basic conceptualization. In the seminal paper published in 1991, Jim March was credited with introducing a dialogue on exploration and exploitation with regard to organizational learning. "Exploration includes things captured by terms such as search, variation, risk taking, experimentation, play, flexibility, discovery, innovation. (March, 1991, p.71). Concisely, information acquisition as defined in Huber (1991) involves gathering information from different

sources through grafting¹, searching and noticing², vicarious learning³, congenital learning⁴ and experiential learning⁵. The second step, information distribution is critically important for organizational learning process because information that is acquired and is not shared would be useful to the individual alone. Information interpretation refers to the process through which individuals make sense of the information they have received and help reduce equivocality. Ambiguity creeps in when multiple, contradictory explanations of the information are strewn in the organization. Based on this context, information interpretation refers to the "process of translating events and developing shared understandings and conceptual schemes" (Daft & Weick, 1984, p.286) and "the process through which information is given meaning" (p.294). Organizational memory refers to storing knowledge in repositories that display persistence over time (Argote, McEvily & Reagans, 2003). The stored knowledge gets embedded into organizational structures, systems and cultures through the process of institutionalization (Crossan et al., 1999). The cognitive approach stakes claim that the different subprocesses of organizational learning successfully captures the entire learning cycle in an organization (Flores et al., 2012). In contrast to the cognitive view, the supporters of behavioural approach argue that the purpose of learning is change in behaviour or action in the desired direction. The limitation of behavioural perspective is that learning and behavioural change are not always axiomatic. In other words, we cannot conclude that - if 'y' learning has happened, it would result in 'x' behavioural change or if 'x' change has occurred, it is because of 'y' organizational learning. Scholars who have looked at organizational learning from these two perspectives have adopted a cognitive perspective more often (Cook & Yanow, 1993).

¹grafting knowledge sources the organization doesn't possess

²searching for knowledge sources

³learning by observing other organizations

⁴knowledge at birth

⁵experience based learning

Another debate that had received attention of organizational learning scholars was whether organizations learn. A closer examination of this long standing debate on individual vs. organizational learning shows that scholars have, either implicitly or explicitly, chosen different positions in this debate. Together these positions can be represented as a bipolar continuum. The organizational learning scholars have taken a position somewhere in this continuum (Bood, 2001) based on their line of research. The ends of the continuum represent two extreme states – only individuals learn and only organizations can learn. Simon (1991) strongly argued that learning can take place only inside heads of the individuals. “An organization learns in only two ways: (a) by the learning of its members, or (b) by ingesting new members who have knowledge the organization didn't previously have” (Simon, 1991, p.125). He further cautions researchers who delve into the other extreme by saying, “we must be careful about reifying the organization and talking about it as ‘knowing’ something or ‘learning’ something” (p. 126). Viewed from this perspective, organizational learning is equivalent to simple summation of individual learning (Kim, 1993). Taking a completely opposing view, March (1991) and Levitt and March (1988) valued collective learning (reflection of collective ideas, processes, structures and strategies) in place of individual learning. Then, there are other scholars in the left of continuum (not extreme left) who describe organizational learning in terms of individual learning, but consider organizational learning different from individual learning (March & Olsen, 1976; Fiol & Lyles, 1985; Nonaka & Takeuchi, 1995). They believe that though individuals learn in the context of an organization, organizational learning is a social process and not simply an aggregate of individual learning. Another group of scholars, who occupy the centre of the continuum, have applied theories of human learning to organizations (Cyert & March, 1963; Hedberg, 1981). For example, Hedberg (1981) says: “although organizational learning occurs through individuals, it

would be a mistake to conclude that organizational learning is nothing but the cumulative result of their members' learning. As individuals develop their personalities, personal habits, and beliefs over time, organizations develop worldviews and ideologies. Organizations do not have brains, but they have cognitive systems and memories... Members come and go, and leadership changes, but organizations' memories preserve certain behaviours, mental maps, norms and values over time" (p.6). Towards right of the continuum are scholars who adopt an 'organization' view of learning and sees organizational learning occurring at various levels of the organization. To a great extent, the debate on individual vs. organizational learning has now made way for a discussion on how organizational learning can proceed across levels. At the individual level, information gets stored in one's mind as schema. At the group level, social interactions bring people together and allow them to acquire, combine and store knowledge. At the organizational level, learning gets stored in knowledge repositories such as processes, structures, systems or strategies. Though scholars agree on the multiplicity of levels at which organizational learning take place, most of the studies seem to have adhered to a single level of analysis. To cite a few examples, individual learning was the emphasis of Argyris and Schon (1978), group learning was the focus for Tucker, Edmondson and Spear (2002) and systems and processes (organizational level) for Bontis, Crossan and Hulland (2002).

Despite reasonable consensus and recognition that different levels of organizational learning (Crossan et al., 2011; Crossan et al., 1999; Bapuji & Crossan, 2004) need to be integrated in a single study, the same has not been reflected in any of the published studies on organizational learning albeit a few exceptions. The lack of studies on the "people" aspect of organizational learning (Demarest, 1997; Iverson & McPhee, 2002) and how such people relationships can lead to a shared understanding while working in a group and then to organizational level learning has

been a major research gap. Kozlowski and Klein (2000) may be right in saying, “Multilevel theory building presents a substantial challenge to organizational scholars trained, for the most part, to ‘think micro’ or to ‘think macro’ but not to ‘think micro and macro’—not, that is, to ‘think multilevel’” (p. 11). In such a situation, there is opportunity for organizational learning researchers to face this challenge openly because organizational learning is a phenomenon that spans multiple levels (Crossan et al., 1999).

Measuring organizational learning has been a talking point among organizational learning scholars and there is still no best way to measure organizational learning. The positivists, interpretivists and intermediates claim that their approach is more prudent in measuring organizational learning. It is true that their methodological claims make them biased towards their own approach. The macro or positivist studies purport the use of surveys as the mode of measurement of organizational learning. To cite a few examples, Zahra (2012) measured speed, depth and breadth of organizational learning using survey questionnaire. Flores et al. (2012) developed their own survey instrument (see appendix 1) for measuring organizational learning in their empirical study of cultural antecedents of organizational learning. Similarly, Tippins and Sohi (2003), Templeton, Lewis and Snyder (2002) have also developed instruments for measuring organizational learning and that has added to the complexity and confusion in choosing the right scale for measurement purposes. The micro or interpretive studies employ qualitative techniques for measurement of organizational learning. Scholars like Yang (2004) have used semi-structured interviews for studying the link between learning and customer satisfaction in the hotel industry and Chen and Lin (2008) conducted semi-structured interviews for determining the nature of organizational learning in libraries. Some others in the interpretive domain have relied on structured interviews, participant observation and other qualitative

techniques for data collection. The intermediate studies usually follow a case-based approach and have greatly benefitted out of mixed-method designs (eg. Argyris, 1993). For example, Antal and Walker (2011) used a mixed-method approach for studying the role of cross-cultural interactions on organizational learning in the case of Chinese returners. Lately, a new set of scholars have emerged, who have started using social network analysis as a tool for measuring organizational learning. O'Reilly's (1991) remark that "organizations are fundamentally relational entities"(p.446) clearly articulates the fitness of network approach to organizational learning. The key advantage in using network analysis in organizational learning is the ability to conduct multi-level data analysis (Contractor, 2006), which has been a serious limitation for studies in organizational learning from a methodological perspective. This study attempts to take this emerging field forward by suggesting a multi-level framework for deepening our understanding of the subprocesses of organizational learning from a network perspective.

In developing a social network analysis framework for organizational learning, we first review some of the basic terminologies used in network analysis. A social network is defined as a set of actors with relationships amongst themselves (Hanneman & Riddle, 2005). The actors may be individuals, groups, organizations, units within the organization or non-human agents like knowledge repositories (Monge & Contractor, 2003). The links between the actors represents the relationship or flow of information between them. The actors in the network are represented by nodes and relationship or flow of information by straight lines connecting the nodes. The centrality measures of a network like degree centrality, closeness centrality and betweenness centrality are important because they help to identify the most important actors in the network. Knoke and Yang (2008) define actor degree centrality as a measure of "the extent to which a node connects to all other nodes in a social network" (p.63). An actor with high degree centrality

would be most visible in the network and have better chances for communication, as it is in direct contact or adjacent to many others in the network. Monge and Contractor (2003) define actor indegree centrality and outdegree centrality for any node having directed relationships in a network. The indegree of a node refers to the total number of links pointed to that node. The number of links originating from a node is called the node's outdegree. Till now, we have been discussing the measures for individual nodes in the network. We also need to consider measures for the network as a whole. According to Monge and Contractor (2003), "a network is centralized if a few individuals (perhaps, just one) have considerably higher centrality scores than others in the network... a network is decentralized if the members in the network have roughly the same centrality scores" (p.44). Degree network centralization is a measure of the extent to which a few actors may have higher degree centrality than others. Another network measure, network density is defined as the ratio of actual ties in a network to maximum possible ties. From an organizational learning lens, a high network centralization and low network density are least preferred in an organizational setting as information distribution gets restricted to a privileged few and they become the decision makers.

The context chosen for this study is family and non-family firms.

Research Propositions:

Information acquisition is an important subprocess of organizational learning for a family firm, as it captures the quintessence of the search capabilities for new information ingrained in a firm (Huber, 1991). As firms gain experience, they tend to become inward focused and limit their search to internal solutions i.e., within the firm (Cyert & March, 1963). The family firms lose their entrepreneurial zeal on their way to getting established and keep emphasizing their ongoing

operations and legacy over innovation (Zahra, 2012). There is stiff resistance to change and the firm adopts conservative strategies to keep its head above water, without any due regard for growth opportunities (Shepherd & Zahra, 2003). The inward focus breeds inertia, and may turn out to be fatal for the firm (Zahra, 2008). The information acquisition capability for family firms may be low also because of the risk evasiveness associated with them and high proclivity towards conserving wealth for future generations (LeBreton-Miller & Miller, 2006). The risk aversion may be attributed to the indifference of the family firm towards exploratory learning (similar to information acquisition from external sources) defined in March (1991), “The essence of exploration is experimentation with new alternatives. Its returns are uncertain, distant and often negative” (p.85). Family firms outrival non-family firms when it comes to exploitation of internal private knowledge garnered by the firm’s history and experience. The over-emphasis on exploitation learning (similar to information acquisition from internal sources) in a family firm is captured by March (1991) comment that “The essence of exploitation is the refinement and extension of existing competences, technologies, and paradigms. Its returns are positive, proximate, and predictable” (p.85). Ensley (2006) comment that family firms stick on to a specific strategy for a longer period of time, also reiterates the lack of exploratory learning in family firms. Recognizing the need for catering to the dynamic business environment, Ng (2004) cautions, “In a hyper-competitive economy where incumbency is almost worthless, an organization must be capable of reinventing its deepest sense of self and its core business concept continuously” (p. 94).The conservatism and strict adherence to established routines in family firms is associated with longer tenure of their CEOs (Zahra, Hayton & Salvato, 2004). As tenure of family firm CEO increases, “their source of information become increasingly narrow

and restricted, and the information is more finely filtered and distilled” (Finkelstein & Hambrick, 1996, p.82).

Proposition 1: For family firms, information acquisition from internal sources would be higher than non-family firms.

The social capital, we discussed earlier, is regarded as one of the key resources held by a family firm (Sirmon & Hitt, 2003). The peculiarity of family firms is that they have been endowed with all the three dimensions of social capital defined in Nahapiet and Ghoshal (1998) – relational social capital, structural social capital and cognitive social capital (Tsai & Ghoshal, 1998). Trust is an example of relational social capital, for it represents an asset embedded in relationships. For family firms, trust is seen as the “fundamental basis for cooperation and potentially provides a key source of competitive advantage” (Steier, 2004, p.337). The diminishing level of trust in a non-family firm and consequential reduction in information flow can be possibly explained by Zand’s (1972) ‘spiral reinforcement model of the dynamics of trust’. According to the model when two individuals decide to share information, there exists an initial trust expectation between them. The sharing of information reinforces the initial trust and the resultant trust advances further sharing of information. Thus, a spiral of trust gets built up and information sharing reaches its peak. However, if the initial expectation itself is of mistrust, the spiral deteriorates into one of reduced information sharing and declining trust. In the case of non-family firms, the latter situation may be true more often than in the case of family firms. The structural social capital indicates the benefits accrued from social interactions. The cognitive dimension describes the formation of shared beliefs that facilitate a common understanding (Tsai & Ghoshal, 1998). The structural and cognitive dimensions of social capital enhance organizational learning in family firms through the management of flow of information and

development of shared interpretations respectively. With high relational, structural and cognitive social capital predominant in family firms, we expect high information distribution among family firms than non-family firms. Adler and Kwon (2002) supports our argument saying, “The first of social capital's direct benefits is information: for the focal actor, social capital facilitates access to broader sources of information and improves information's quality, relevance, and timeliness”(p.29). Therefore, we argue that family firms’ unique resources provide greater opportunities for information sharing.

Proposition 2: For family firms, information distribution would be higher than non-family firms.

The similarity in the cognitive capabilities for members in a family may be the reason behind stability in their mental schema (Arregle, Hitt, Sirmon and Very, 2007). The involvement of family members in the business processes at a very early stage may be advantageous for several reasons. The similarity in thought process achieved by learning directly from the founder or managing family, ability to accumulate much valued social capital at a young age, better understanding of the complexity of information processing through deciphering firm specific tacit knowledge in early life, can have a cumulative effect on the interpretive skills of the family member. The family members are expected to strictly adhere to the norms and values practiced in the family. The norms derived from family traditions have a significant role to play in the adoption of common values and shared interpretation among members of the family (Bettenhausent & Murnighan, 1991). The theory of homophily would suggest that the top management heterogeneity of family firm would be lower than non-family firms. Since heterogeneity has been recognized as a prime factor for strategic decision making (Finkelstein & Hambrick, 1990, 1996), family firms try to increase their heterogeneity by sending family members to work in non-family firms and recruiting non-family managers (Sirmon & Hitt,

2003). The heavy involvement of family members often make non-family members feel excluded. The non-family members may have little discretion to act independently. The non-family managers may find it difficult to voice their opinion in the firm, if they enter into disagreement with any family member. The non-family employees also have to secure support of family members, if they want to get their ideas and plans implemented in the firm. If the non-family members feel that their voices are not sufficiently heard, they may withdraw from active involvement or leave the company. There is also the fear of 'strategic simplicity' defined as "a pathological cognitive condition that causes some managers to overuse ready-made solutions without probing the assumptions underlying the decisions they make" (Zahra, 2005, p.26) and the net result is "routines that worked well in the past are used again and again regardless of the strategic challenges facing the family firm" (Zahra, 2005, p.24). If the managers in a family firm resort to 'strategic simplicity', it would severely limit the family firm's strategic arsenal.

Proposition 3: Information interpretation would be more centralized in family firms than non-family firms.

Methodology:

We propose to use a whole-network (socio-centric) approach for social network analysis. The exploratory analysis tools and techniques (e.g. UCINET) would be used in the examination of relational phenomena. A survey measuring the extent of information sharing with other members of the network would be administered to top management and managers of small and medium enterprises. The survey administered will have two parts. The first part of the survey would be designed to gather whole network data. The second part of the survey would be used to collect

demographic data. To identify the network ties, we give the respondents a roster that includes the names of top management and managers in the firm. We ask them questions to find their relationship with others (Marsden, 1990). We also ask respondents about demographic information like gender, hierarchy and tenure in the family firm. The whole network survey data is then used to build a matrix of information sharing ties in organization using UCINET software. The network measures would be mostly collected using a single item. The use of multi-item scales is difficult in network research because of time and fatigue related concerns. The response rate may be lower and there could be more errors in data collection (Ibarra & Andrews, 1993). The use of single item requires researchers to ask unambiguous, focused questions. Hence, we try to minimize ambiguity in our survey design by explaining each question in detail.

Network Measures:

Information Acquisition: A matrix of all information sharing ties in the family firm and non-family firm would be constructed and analysed using UCINET software (Borgatti et al., 2006). We use directed data for measuring centrality (Wasserman & Faust, 1994). Individual indegree centrality score would be calculated to give us a measure of the number of information cues an actor has received from various sources in the network. This measure would help us distinguish between information acquisition for family members and non-family members in the family firm. The density score for the network would give us an idea of the extent of information acquired by the firm through strong and weak ties. The overall network density measure for each firm would show the variation in information acquisition for family firms and non-family firms.

Information Distribution: The individual outdegree centrality score would determine the extent of information distribution for each actor in the network. The reach centrality measures the percentage of nodes reachable in a given step. It is an indicator of how easily information can be disseminated in a network. Actor closeness centrality is calculated to show how close a node is to distribute information to other nodes. Network density is used to compare information distribution for family and non-family firms.

Information Interpretation: Degree network centralization measure is used to find the extent to which any actor or actors have higher degree centrality than others in the network. In a communication network, high degree network centralization indicates higher chances for information flow to be concentrated in the hands of a few individuals in the network. Hence, the degree network centralization score would determine whether information interpretation is the monopoly of a few (eg. family members) in the network. As explained earlier, betweenness centrality can be described as a measure of the extent to which an actor has control over information flowing between others. An actor with high betweenness centrality controls the flow of information and manages the interpretation of information within the firm. In the case of family firms, we expect family members to fill this role.

Conclusion:

A review of the organizational learning literature with the three debates as the cornerstone has been successfully presented in this study. We believe that we were also able to address the long standing need among scholars to find an alternative method for studying organizational learning from different levels of the organization simultaneously through this study.

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