Knowledge Gained from Action and Reaction Learning in Small and Medium-sized Enterprises: Two Sides of the Same Coin

by Maria Sarabia and Maria Obeso

In this article, we explore the behavior of leaders and followers within interaction systems in the business environment, using the example of small to medium-sized enterprises (SMEs). In order to understand this behavior and the issues surrounding it, we should first describe the typical behavior of leaders and followers and explore the competitive way in which they interact. Rival firms often show a tendency to agglomerate or cluster in close geographic proximity. Research in management suggests that the external environment confronted by individual firms within such clusters may differ from the environment faced by similar firms outside the agglomeration. In his book *Micromotives and Macrobehavior*, Thomas Schelling explains this behavior as follows:

People are responding to an environment that consists of other people responding to their environment, which consists of people responding to an environment of people’s responses...To make that connection we usually have to look at the system of interaction between individuals and their environment...[1, p. 14]

As Schelling observes, firms respond not only to what they perceive as relatively objective environmental factors, but also to the actions of other firms. They in turn are responding not only to the same environmental factors, but also to the actions of the first set of firms [2]. This is the description of a competitive market – an interaction system.

Imitation is accepted as commonplace in many business domains. For example, firms imitate each other in the introduction of new processes and products, in the adoption of management strategies and even in entry to new markets and timing of investment. In this way, when competitors take...
similar actions, there is less chance that any firm will succeed or fail relative to others. This preserves the balance between leaders and followers, even in industries where there is a strong rivalry.

Lieberman and Asaba [3] suggest that attempts to describe imitative behavior fall into two general categories:

- Information-based theories: firms that appear to enjoy privileged access to information are followed by other firms, and
- Rivalry-based theories: firms imitate others in order to maintain competitive parity or balance in their grouping or clustering of information.

Information-based theories apply in environments of uncertainty and ambiguity where managers cannot definitively assess how action and market performance are connected. In such cases managers are likely to look for informational clues implicit in the actions of others. The most famous theory pertaining to this behavior is information cascades or social learning [4, 5]. According to Bikhchandani et al. [6], information cascades occur when there is a greater economic benefit to be gained in following the behavior of others than in acting from one’s own understanding or private information. For example, a manager may elect to follow a management trend rather than to follow strategies that he has found successful in the past. One possible reason for that decision is the perception that the fashion leader is likely to have superior information. Small firms may follow larger rivals, believing the latter to be better informed. In the same way, firms that have been successful in the past are more likely to be imitated.

Another interesting concept within information-based theories is proposed by DiMaggio and Powell [7]: isomorphism. These authors argue that rational actors make their organizations increasingly similar when they try to change them, leading to mimetic isomorphism, a process whereby organizations model themselves on other organizations when the environment is uncertain. The modeled organization is perceived as more legitimate or successful, and such modeling is a rational behavior because it economizes on the search costs to reduce the uncertainty that organizations are facing [8].

Lieberman and Asaba’s second approach is centered around the notion of competitive rivalry [3]. Firms imitate others in an effort to maintain their relative position or neutralize the aggressive actions of rivals. In this case, firms’ actions are not about conveying information but instead suggest that imitation to mitigate rivalry is most common when firms with comparable resource endowments and market positions face each other. Porter [9] suggests that firms within the same strategic group may adopt similar behavior to constrain competition from outside sources.

We have seen that this process of imitation is an important factor in corporate decision-making, but what impact do environmental factors have on the ways in which SMEs within a given interaction system act, reason and learn? In answering this question, we begin by exploring the active learning process from the viewpoint of knowledge (cognitive development of learning) and subsequently look at behavioral levels or change in levels linked to the learning process. As we will show, the reactive learning process can be seen as a consequence of considering environmental factors, and a firm can learn from others as a consequence of previous actions by its leaders.

**Action Learning as Internal Process within a Firm**

An organization learns when knowledge held by each individual who is part of the group is shared beyond temporal, spatial or structural limits. Just as each individual must learn to surmount changes in his or her circumstances, so must the organization. In this way, learning can be seen as the key tool in the management of companies in turbulent environments. According to Huber [10], learning can be defined as the organization’s ability to self-adapt to environmental changes, to be flexible and respond quickly with appropriately chosen actions, enabling implementation and management of internal change within the organization. Garvin [11] explains that an organization that learns needs expertise in five areas: systematic resolution of problems, experimentation of new focuses, use of their own experience and past to learn, learning from the experiences and practices of other companies (benchmarking), and transmitting this knowledge to the whole organization, quickly and efficiently.

Argyris and Schön [12] propose two learning types: 1) single-loop
learning, which involves making continuous adaptations to keep the organization stable and within normal operating parameters; 2) double-loop learning, which involves being prepared to question the fundamental values and parameters under which the organization operates. Nonaka and Takeuchi [13] contribute a point of view of their own: The creation of knowledge implies the interaction of both single- and double-loop learning. Then, within the idea of "an organization learns," we cannot forget Senge [14] and his MIT colleagues, who, in their desire to model organizational learning, laid down five disciplines as prerequisites:

1. to adopt systemic thought,
2. to encourage personal abilities,
3. to have doubts about the traditional mental models,
4. to generate a shared vision and
5. to facilitate team learning.

The real problem of learning lies between what is known and what should be known. Under some circumstances, individuals may develop defensive routines, preventing the situation from being clearly or accurately perceived. As a consequence, mental models are sometimes built on the basis of distorted perceptions, thereby reducing the perceived necessity of learning [15]. What is the nexus of union between knowledge and learning? Garvin [11, p. 56] was able to establish a clear relationship between both concepts: "An organization that learns is an expert organization in creating, acquiring and transmitting knowledge and in modifying its behavior to self-adapt" [author's translation].

Following Nonaka and Takeuchi [13], knowledge creation takes place at three levels: the individual, the group and the organizational levels. Developing their theory, they also identified two forms of knowledge interaction (tacit and explicit). The forms and the levels must both be developed in the knowledge creation process (see Figure 1).

Knowledge interaction represents the different modes of knowledge: tacit and explicit. In the epistemological dimension, knowledge derives from its distinction between tacit and explicit. In the ontological dimension, organizational knowledge creation is understood as a process that amplifies existing knowledge created by individuals and crystallizes it in a shared knowledge network. Thus, the knowledge curve that results by graphing the two dimensions shows how knowledge is created from individual to organization and from tacit to explicit.

If we analyze knowledge creation at the group level, it is interesting to examine how, on a group level, knowledge is transmitted from an individual to the organization. At the same time, the information transforms from being tacitly understood to explicitly stated. On the individual level, this epistemological transformation explains how tacit knowledge is created and transmitted to the group, becoming explicit. The group dimension is defined as a set of individuals who develop knowledge from its tacit origins into an explicit representation. A group of individuals possesses both types of knowledge, tacit and explicit, shared by individuals with the group, and finally maintained explicitly as organizationally shared knowledge.

However, knowledge and action are far from synonymous. Fiol and Lyles [15] hold that, especially in the context of organizational learning and adaptation, there is an important difference between cognition and behavior.
Changes in behavior may occur without any associated change in cognition or belief or knowledge may be gained without any accompanying change in behavior.

Fiol and Lyles propose a figure for understanding changes in behavior and level of cognitive development (see Figure 2) and further define stances commonly taken by firms on the topic of change and learning and how firms may react to changes in the broader environment:

- **Position A** is typical of bureaucratic firms where no learning takes place and no attempts are made to change. This position is common in a stable and predictable environment.
- **Position B** represents firms that regularly take actions and change strategies but within which very little learning takes place. This position is recommended in an environment in which accurate prediction is impossible.
- **Position C** (high learning, low change) is the most appropriate behavior in a turbulent environment in which innovation is crucial for survival but too much change would result in the firm losing its sense of direction.
- **Position D** (high learning, high change) is appropriate in a moderately turbulent environment where firms are agile and adaptive, constantly changing with few defined rules because they are better at learning, problem formulation and problem solving.

This raises the questions of how, what and how much an organization should seek to learn. Revans [16] believes in generating knowledge through experience – working with and learning from practical problems – rather than the application of pre-existing knowledge (book-learning). He describes this approach as “action learning.” In his famous formula, Learning = P + Q, the “P” stands for programmed learning, whereas “Q” represents learning that comes from asking questions and looking at evidence. In consequence, Revans argues that a team must be organized into two groups: the task of the first is to complete the project by solving the problem, while the second group is to learn from the experience. In this sense, action learning involves the following major steps [17]:

- Organize into a team with ownership of problems
- Use diversity in team formation when possible
- Allow few planned programs but require much questioning
- Use a team advisor if needed
- Meet regularly to discuss solutions to the problems
- Once problems are solved, continue to meet to focus on learning and reflection
- Conclude action learning only when all relevant learning is gleaned from the projects

As we have seen, knowledge and learning are closely linked. Knowledge may be converted from tacit to explicit representations and be distributed by the individual to the broader organization [13], a model that is crucial in understanding how different levels of learning and levels of organizational change are influenced by the environment [15]. Furthermore, Revans’ approach [16] defined action learning as a step-by-step process where teams distinguish between solving a task and learning from the experience, identifying two types of learning – programmed versus exploratory – questioning investigation.

It is important to recognize that environmental factors can have an effect on behavioral development or change, as well as on cognitive development or learning level. In consequence, environmental factors can affect the
process of action learning. At this point, in-depth study is required to understand how action learning and environmental factors influence different organizational behaviors, such as the mimetic or imitative instinct (“followership”) exhibited by firms within an interaction system of SMEs.

We suggest that one of the missing elements in this analysis is reaction learning. Revans’ approach can be adapted to explain rivalry strategies in which action-reaction behaviors are adopted within a competitive market. In this sense teams within the firm adopting this imitative strategy also distinguish between two tasks: imitating a process adopted by a leading firm and adapting it to the firm – that is, imitation – and learning from experience. In the remainder of this article, we explore how a group of SMEs within an interaction system can obtain knowledge developed through an action or reaction learning process.

Reaction Learning as a Consequence of the Interaction System among SMEs

Many studies of knowledge use in SMEs suggest that knowledge is gained through the tacit experiences of specific individuals. For example, Honig [18], who explored learning strategies used by entrepreneurs and intrapreneurs in Sweden, found that entrepreneurs tended to use unstructured flexible processes, used external networks and avoided established patterns of doing things. Floren [19] found that owner-managers (directors or senior management within an enterprise) learn by exposing themselves to opinions originating outside the enterprise. So, the criteria for success relate not only to self-motivation and vision, but the entrepreneur’s ability to adapt to external influences [20].

Entrepreneurial knowledge structures explore the idea of how entrepreneurs learn from others and how others learn from entrepreneurs. This approach reflects that other external factors have an effect on learning behavior within SMEs. Following Revans’ approach [16] to describing action learning, a similar approach can be used to demonstrate how a small or medium-sized enterprise within an interaction system develops its action learning process. There are learning activities that take place during every day working life. Revans emphasizes that this learning comes from questioning. However, Revans does not indicate if this learning process primarily involves internal experiences or outside influences. If we modify Fiol and Lyles’ learning/change levels to add this distinction, we can then modify the four positions (A, B, C, D) as discussed below. Table 1 summarizes this expanded model.

Looking at the table we can see the following:

- Position A (a stable and predictable environment: bureaucratic firms, no learning and no change): There is no programmed learning (P) and no incentive for change or learning from insiders (Q1). These firms are also looking at outsiders without thinking about any improvement (reaction learning, Q2).
- Position B (unpredictable environment characterized by quick reactions): These firms are not looking at insiders in order to learn because they are very worried about competitors and acting quickly for survival. The programmed learning (P) is a consequence of observed learning from outsiders (reaction learning, Q2).
- Position C (turbulent environment in which firms produce innovations): For that reason, they do not learn from competitors (Q2), but they do learn from insiders and their way of doing innovative work (action learning, Q1).
- Position D (moderately turbulent environment, firms constantly changing with a few well-defined rules): Program learning is therefore
close to zero but the observations from insiders and outsiders (action and reaction learning, Q1 and Q2, respectively) are relatively significant components in the system overall.

This analysis of learning from outsiders (Q2), or by analogy to the term coined by Revans, reaction learning, explains a class of observed behavior exhibited by SMEs within an interaction system. Firms can learn either by leading the way and learning from the consequences or by following the actions of their close competitors – action and reaction.

Conclusion
This article investigates behaviors of leaders and followers within interactive systems. It can be seen that the process of imitation is crucial in environments where uncertainty is present and where the firm’s strategy is not only to consider internal and personal factors, but also to hope for risky decisions to be made by competitors. By evaluating these behaviors, the close link between knowledge and learning can be examined, revealing that action and reaction learning are two sides of the same coin.

Resources Mentioned in the Article