FAILURES OF ENTREPRENEURAL LEARNING IN KNOWLEDGE-BASED STARTUPS

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FAILURES OF ENTREPRENEURIAL LEARNING IN KNOWLEDGE-BASED STARTUPS

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ABSTRACT

Entrepreneurial learning can occur when young firms learn from social networks, from failure events, and from real-time improvisation. This inductive paper explores three learning challenges young firms face in effective entrepreneurial learning. We draw on data from in-depth interviews in sixty young knowledge-based firms. The data revealed striking patterns between the types of knowledge shaping the behavior of the firms in our sample and their patterns of entrepreneurial learning. First, we found a pattern of absorptive inertia – some new firms developed the capacity to absorb knowledge from outside the firm, but at the same time developed an unwillingness to absorb external knowledge. Second, we uncovered a rich pattern through firms succeeded or failed to learn from their own failure experience. Firms relying only on procedural knowledge about an activity seemed much more likely to fail to learn from failure than were firms with declarative knowledge about an activity. Third, our findings show that effective learning from improvisation may depend on the accumulation of declarative knowledge. Our propositions advance theories of organizational learning and entrepreneurship.

INTRODUCTION

As new firms have limited organizational routines that govern much of the behavior in more established firms (Nelson and Winter, 1982), entrepreneurial learning plays a key role in developing organizational capabilities in young firms, and in their survival and growth (Kim, Kim & Miner, 2005; Sapienza, Autio, George & Zahra, 2005). Prior research suggests three types of such entrepreneurial learning that may be particularly important in young firms: learning from entrepreneurial networks (Aldrich & Ruef, 2006; Zahra & George, 2002), learning from survivable failures (Sitkin, 1992), and learning through improvisation (Miner, Bassoff & Moorman, 2001; Weick, 1991).

It has long been observed that firms’ own direct experience is in many ways inadequate given the tremendous learning challenges they often face (March, Sproull & Tamuz, 1991). Large knowledge gaps and impoverished repositories of direct organizational experience exacerbate such inadequacies for young firms, and place a premium on their ability to learn from the experiences of others (Haunschild & Miner, 1997), especially the members of their networks. Prior empirical research has suggested that interaction with members of the networks in which young firms are embedded is a potentially rich source of learning (Aldrich & Zimmer, 1986).

Learning directly from failure experiences may also be particularly important for young firms without resource buffers permitting them to survive repeated or continuing failure (Kim, Kim & Miner, 2005; Meyer & Zucker, 1989). As young firms learn about their competitive environments and their own developing capabilities, they may experience a wide variety of survivable failures. These failures often provide clearer and novel information than do successes (Lounama & March, 1987). Experiencing survivable failures may teach firms both about specific behaviors to avoid and more general lessons about capability development. A variety of perspectives, including general systems theory (Boulding, 1956), social evolution (Campbell, 1969) and real options reasoning (McGrath, 1999), have suggested the importance of failure to organizational adaptation and learning.
Finally, because young firms do not have routines in place for handling many of the problems and opportunities they face, they call upon a broad repertoire of behaviors in their attempts to meet new challenges, taking whatever actions seem promising, appropriate and available at the time. They may be particularly likely to improvise responses when they face new opportunities or problems (Gong, Baker, & Miner, 2005). Recent studies have suggested that learning through improvisation has significant impact on both short-term outcomes and longer-term capability development in new ventures (Baker, Miner, & Eesley, 2003; Gong et al., 2005; Miner et al., 2001).

Despite a rich literature concerning the above three learning mechanisms, prior research has shed limited light on the challenges new firms face in the process of entrepreneurial learning. As new firms begin with the accumulated knowledge of their founding entrepreneurs and whatever these individuals have brought with them from prior employment or entrepreneurial experience (Cope, 2005; Warren, 2004), we were particularly interested in building a theory on how new firms build learning momentum based on prior knowledge in firms—whether carried into new firms by founders or gained through early entrepreneurial learning. We adopted an exploratory lens focused on the relationship between early firm knowledge and subsequent learning, especially as this learning became embedded in firm routines. Early in our inductive study of entrepreneurial learning among 60 knowledge-intensive start-ups, we observed that these young firms seemed to differ significantly in the effectiveness of their learning and that some firms repeatedly failed to learn from one or another of the three potential sources of entrepreneurial learning we had identified from the prior literature. This raised three puzzles that guided our grounded study of entrepreneurial learning. First, why do new firms sometimes fail to learn from their social networks? Second, why do new firms sometimes fail to learn from their failure experiences? Third, why do new firms sometimes fail to learn from their own improvisational attempts to deal with new challenges?

Founders’ prior experiences in other firms served as the sources of many of the routines we observed (Gong, Baker, & Miner, 2004) and founders differed in the sorts of knowledge they brought to their new ventures. In some cases, founders had been the people responsible for performing routines at prior workplaces, rather than the people responsible for developing routines or deciding how or when to implement them. In other cases, founders had participated primarily in decision-making or oversight of specific routines at prior firms, but had little actual “hands-on” knowledge of the performance of the routines. This pattern led us to distinguish procedural knowledge, defined as “the ability to execute sequences to solve problems” from declarative knowledge, defined as “implicit or explicit understanding of the principles that govern a domain and of the interrelations between units of knowledge in a domain (Rittle-Johnson, Siegler, & Alibali, 2001).”

Although it required months of examining the data before the importance of distinguishing between procedural and declarative knowledge became clear to us, it then became apparent quickly this distinction supported important insights across the three learning mechanisms we examined. To foreshadow our results, we found, consistent with prior research on absorptive capacity, that related declarative knowledge helped firms to integrate knowledge available to them from network sources. But, surprisingly, we also found that as prior knowledge increased, firms sometimes developed absorptive inertia and became less willing to absorb knowledge from their social networks. Second, we observed that as firms’ early routines generated failures, those with declarative knowledge regarding these routines were more likely to learn from the failures than were firms with only procedural knowledge. Finally, extending our observations on learning from failure, firms with related declarative knowledge were more likely to recognize and learn from failed patterns of improvisation. Our propositions advance theories of entrepreneurship and organizational learning, and offer new ideas about systematic processes that shape the boundary processes for effective entrepreneurial learning.

METHODS
Research Setting

In theories of organizational learning, routines are seen to predate and outlast the multiple organization members whose behavior they help to coordinate, positioning them as central mechanisms of organizational memory (Moorman & Miner, 1998b). Prior research on organizational learning and routines has tended to focus on the context of established organizations in which a great deal of behavior is governed by established routines and by meta-routines governing which routines should be invoked in different circumstances (Adler, Goldoftas, & Levine, 1999; Winter, 2003). We focus instead on young organizations, which are still early in the process of developing routines to coordinate member behavior (Baker, Miner, & Eesley, 2003). As these firms struggle to create reliability in their performance of a wide variety of behaviors and simultaneously struggle to learn new behaviors, they present a compact system of activity in which it is possible to observe several paths of entrepreneurial learning in the context of routine development (Levitt & March, 1988).

Data Collection and Analysis

We followed accepted practices for grounded theory building research. To conserve space, we provide a brief overview of our methods here. Additional details regarding how we collected and analyzed our data are available upon request from the first author. This study is part of a broad multiyear examination of the emergence of patterned organizational behaviors in a random sample of 60 independent young (five years or less) knowledge-intensive firms in three sectors (SIC 283-Biotechnology & Drugs; SIC 737-Information Technology; SIC 873-Research, Development, and Testing Services) and located in a single county home to a large Midwestern research university. After conducting pilot interviews to develop our interview protocol, two and sometimes more members of the research team conducted semi-structured interviews focusing on various events – which the respondents perceived as defining important moments in the firms’ histories – and on what the firms were doing before, during and after these events (Chell, 1998). We gently shaped the direction of the interviews, but allowed and encouraged the respondents to tell us about as many events as they wished, in whatever manner they wished.

To reduce the risk of retrospective biases, we did not ask directly about any of the concepts, such as declarative or procedural knowledge or learning, that became the focus of our study. At the conclusion of the interviews, we asked founders to complete several written instruments regarding events they described in the interviews and describing the development of the social network in which the firm was embedded. The interview and documentation process generated 1,725 pages of transcripts. The transcripts, field notes, supporting questionnaires, and related documents we assembled provide a rich and varied set of descriptions of firm processes, histories, and networks.

Data Analysis

We used a highly iterative process of grounded theory development (Denzin and Lincoln 1998, Eisenhardt 1989, Strauss and Corbin 1998), creating a dialogue between concepts and data that we describe below (Ragin 1987). The process of continuous comparison between the data and our developing theory involved multiple team members reading the transcripts more than a dozen times, and over 200 meetings and conversations involving two or more members. The process was further strengthened by our application of a two-layer replication logic (Eisenhardt 1989, Yin 1984), whereby 39 firms with more than one founder were used to develop theoretical patterns and processes related to entrepreneurial learning, and then these patterns and processes were reviewed in the remaining 21 firms with only a single founder. The overlapping form of iterative data examination occurred through ongoing reviews and discussions of transcripts and other data over a period of more than 30 months.

Our process started with a flexible framework for organizing the relevant data based on the three generic research questions. Using this framework, two members of the team independently read notes and transcripts and wrote short cases summaries reflecting rudimentary patterns from the first batch of five
After exchanging and discussing their interpretations, the two brought both convergent and divergent ideas to a weekly project meeting. The rudimentary patterns were discussed and the third team member who was deliberately skipping the early reading would take a devil’s advocate role to challenge the observations, following a “courtroom” procedure where discussion focuses on concrete facts and events rather than personal speculation (Eisenhardt 1989). Whenever inspired by quotations in transcripts or remarks in discussion, we would then turn to the original transcripts and scrutinize the qualitative data to probe the early research ideas further. Upon a sense of saturation on the first 5 transcripts, we moved to the next 5 transcripts and repeated the same procedures. Meanwhile, we kept updating and refining our analytical framework along the way.

This conservative process lasted over 12 months as we went through the first layer of 39 transcripts at a pace of 4-6 transcripts each time. Throughout the process, unsurprisingly, we witnessed twists and turns in our investigation, scrutinizing and resolving divergent observations. Through iterative examination of our data and critical exchange among team members, we converged upon a small set of promising theoretical patterns as inputs for the follow-up ‘replication’ stage which dealt with the remaining 21 transcripts.

The replication process lasted over 18 months, resulting in significant refinement of the original themes derived in the first stage. The replication process enhanced our confidence about the validity and plausibility of our findings. Throughout this process, we supplemented the internal devil’s advocate within the project team with external scholars and doctoral students by presenting our ongoing work for public scrutiny at research conferences and seminars. Eventually, a limited number of themes withstood this iterative cycle and are reported here.

**FINDINGS**

**Learning Challenge I – Learning from Networks**

We observed that moderate levels of related declarative knowledge appeared to ease the process of learning from network sources. More surprisingly, high levels of relevant knowledge sometimes decreased the tendency to absorb knowledge from others – a process we labeled as “absorptive inertia.”

**Absorptive capacity.** Firms’ ability to integrate routines proposed by members of their networks often seemed to increase with the accumulation of experience in activities related to the routine. For example, a group of scientists founded CloneRight in an attempt to become the first firm to clone a particular, economically important species of farm animal. Initially, they knew very little about the breeding and control processes they needed to master in order to manage embryonic development, so they attempted to import routines developed by a scientist member of the firm’s network from another university. The process was plagued by errors and misunderstandings and even some public embarrassments as the CloneRight scientists did not know enough about the topic to understand or exercise any judgment regarding the routines they were attempting to implement, and were unable to generalize the network member’s routines to their own context. As one founder described, “It wasn’t working. There had been some miscommunication of facts and basically we had to become, we knew when we entered the arrangement we were not specialists in the area of (type of animal) reproduction, so we sought one out, and what we thought was supposed to be. (CloneRight 8:24)” Frustrated by its inability to import breeding routines, CloneRight began to improvise, and struggled through messy trial and error to figure out the breeding processes on their own. “Turned out we had to become reproduction specialists. And so when we had to we rolled up our sleeves and we became such. (CloneRight 8:27)” Gradually, CloneRight developed enough declarative knowledge regarding breeding that it felt confident in its ability to integrate external breeding routines in a considered and nuanced way. Based on this and similar observations, we propose:

**Proposition 1a: Related declarative knowledge increases a firm’s likelihood of learning from network sources.**
This proposition echoes in a mundane way the construct of ‘absorptive capacity’ and arguments that differences in firms’ ability to integrate and make productive use of externally-produced knowledge influence a variety of firm outcomes (Cohen & Levinthal, 1994; Zahra & George, 2002).

Absorptive inertia. We also observed, however, that the accumulation of experience and knowledge can have very different – and perhaps contrary effects to what research on absorptive capacity leads us to expect. In contrast to the way that increasing topical knowledge increased firms’ ability to draw on external routines, we observed that the same increases in knowledge and local routines appeared to reduce firms’ desire to learn from other organizations and also their willingness to import or combine elements of external routines.

Continuing with the animal-cloning example, at about the same time the firm had developed related declarative knowledge that would allow it to draw effectively from the routines suggested by outside experts, CloneRight became unwilling to do so. As one founder described,

“Lost confidence in experts. Realized that really the only expert when you are faced with a problem is you’ve got to just roll your sleeves up and dig in because you’re the only person committed to finding the answer. I’ve lost my faith in consultants. Consultants are good for gathering information from, but they’re usually noncommitted and certainly not accountable for any results. (CloneRight 10:23).”

We define such unwillingness to draw from external expertise and routines as “absorptive inertia.” In contrast to absorptive capacity, absorptive inertia inhibits the interorganizational learning that can be essential for the growth and survival of knowledge-based young firms. This overall pattern we observed suggests a self-limiting dynamic in firm’s likelihood of drawing new routines from their networks. Firms lacking declarative knowledge are unable to draw successfully on external routines. But as they develop the knowledge permitting them to integrate routines available through their network, they may become less willing to do so. We therefore propose,

Proposition 1b: Related declarative knowledge may reduce a firm’s willingness and therefore its likelihood of learning through its network.

Learning Challenge II - Learning from Failure

Our interview data contains myriad examples of experiences that founders describe as disappointments and failures. Much of what we observed was consistent both with the literature on organizational learning and with common sense. When an organization experienced something and it appeared to work, the organization did more of it. Similarly, when an organization experienced something and it appeared not to work, the organization often learned from the failure and did less of it. We were surprised, however, by our observation of a variety of situations in which firms appeared to fail to learn from the failure of their attempts to address a new challenge. In some cases, despite recognition of failure and even recognition that the routines had generated the failure, we observed that firms appeared unable to learn effective adjustments to their routines. Our analysis revealed that firms’ reliance on procedural knowledge (knowing “how to do it”) seemed to make them more likely to fail to learn from failure compared with firms that had declarative knowledge (knowing “why, when or if to do it”) about an activity.

Learning from failure. In some cases, firms’ routines were based on a founder’s prior declarative knowledge absent much in the way of procedural knowledge. That is, the founder knew when and why the routines were typically used, but did not actually know how to execute the routines. For example, the founder of EntCon had no practical experience making or implementing HR policies regarding non-compete agreements. She had intensive declarative knowledge regarding when and why they were typically used, but considered their use by her prior employers as a failure and a signal of mistrust. In her
new firm, she explicitly decided not to add any legalistic routines that might send such signals. As she noted, “I didn’t have non-competes because every other company I’ve ever worked with had non-competes, and I didn’t understand why a handshake wasn’t good enough.”

When an early employee subsequently left to start a competing business, she described herself as “shocked” by the event, but decided that it was a “fluke,” rather than a failure induced by her employment routines: “On one level I understood why he did things the way he had done them, but I couldn’t believe he did it. I thought his value system, as I said, was so similar to mine that I couldn’t believe he did it. (EntCon 5:17)” Then within three months, it happened again, and within three months after that, it happened a third time, and the founder decided that the ongoing trials of her trust-based routines had to be stopped,

“I hired a corporate attorney that I still work with today and had a non-compete drawn up. So any new hires have to sign a non-compete when they join... Yes. Yes, it was basically anyone that joins from this point on has to have a non-compete. (EntCon 7:19)”

She asked both existing and new employees to sign the non-compete agreement and has not had anyone leave to compete with her since. Despite the lack of prior procedural knowledge regarding how to implement routines imposing non-compete agreements on employees, her substantial declarative knowledge helped her both to see that her hiring routines were generating failures, and also to take quick steps to address the problem.

**Failing to learn from failure.** In other cases, firm routines were rooted in founders’ prior procedural knowledge of routines, without supporting declarative knowledge. That is, the founders brought intensive knowledge of how to execute a routine, but had little knowledge of why or when the routine was likely to be effective. For example, the founder of another information technology development and consulting firm, called CR, brought a great deal of procedural knowledge of recruitment and hiring routines – especially as they applied to salespeople – but very little declarative knowledge of principals or features that might usefully guide such routines. He was convinced his procedural knowledge – hard won during the course of hiring and managing, by his estimate, 60 salespeople – represented a strong source of routines useful for the new firm, “It just was part of my job, to find sales reps that could go out and represent (Prior Employer). So I thought I was really good at it, you know? (CR 6:33)”

The new firm, following routines this founder helped to replicate, hired a series of seven salespeople. Although each hire was subsequently recognized and acknowledged to be a failure, because they brought in no new revenue, the firm still did not make any substantial changes in its routines for recruiting, selecting or managing them. At the time of our interviews, the firm had, in the founder’s estimate, “never had a salesperson bring in any business. So that'll give you some background. Seven people never brought in a nickel. (CR 8:11)”

In the absence of declarative knowledge that might help to diagnose and improve the firm’s routines, the founder largely viewed the failures as out of the firm’s control, effectively throwing up his hands and explaining that the firm tried very hard to avoid hiring any more unsuccessful salespeople, but had been unable to learn not to get caught up in candidates self confidence, “But people believe in themselves when they come in. And that’s great. And they get you excited about what they can do.” The firm maintained its same failed hiring routines and was consequently unable to develop capabilities in an area the founder believed central to its future success. Indeed, the founder had come to the frustrated conclusion that there was little or nothing he could do to improve the firm’ “… it was completely up to them. Here’s the goal. Do it. I’m certainly here to help and support and train, but it’s up to you to meet that goal. (CR 6:32)”
Proposition 2: Firms with declarative knowledge regarding their routines are more likely to learn from failures generated from these routines than are firms with only related procedural knowledge.

Learning Challenge III – Breaking Improvisational Momentum

A recurring emerging from our data is that there is no lock-step series of behaviors through which new organizations learn how to face recurring challenges or embed these lessons in routines. The young organizations we studied attempted to accomplish their goals using whatever behavior in their repertoires appeared most appropriate at the time, and in this process they frequently relied on improvisation.

Because new firms lack routines for a wide variety of activities, they often respond improvisationally to new challenges, simultaneously designing and executing novel responses (Moorman & Miner, 1998a). Improvisation appeared to be the modal response to new problems and opportunities in the early days of many of the firms in our sample, as these firms operated using rudimentary early routines that might be characterized as: “when any process you have been following fails, improvise.” In many cases these firms then developed routines that supplanted their reliance on improvisation to solve recurring challenges, but in others cases, the reliance on improvisation continued.

Prior research suggests that when new firms rely on improvisation for meeting both short term and recurring challenges, they are vulnerable to being trapped into improvisational momentum that may be difficult to escape. For example, Baker et al. (2003) showed that knowledge intensive firms solved classes of repeated problems by repeatedly improvising fixes and therefore never learned to correct the underlying source of the problems. Improvisational momentum, whether with positive or negative short-term outcomes, may be detrimental to new firms’ attempts to learn from improvisation, reducing the likelihood that they will learn related non-improvisational capabilities.

We focused closely on the processes through which the firms we studied either did or did not stop improvising particular sets of behaviors. In our analyses, the distinction between declarative and procedural knowledge allowed us to develop insights regarding the likelihood that firms would break their improvisational momentum and develop non-improvisational capabilities. In particular, whether a firm developed early declarative knowledge regarding when to engage in improvisation seemed to influence whether the firm would recognize the limitations of continued improvisation and learn a broader non-improvisational response repertoire. To illustrate this pattern, we describe and contrast two very similar cases, one in which a firm broke its improvisational momentum and one in another firm did not.

Information technology consulting firm CloNet sold a project that required integrating and synchronizing “a whole bunch” of existing audio and video files for a new client. When CloNet negotiated the contract, it expected – incorrectly as it turned out – that the project would be straightforward: “And it was, you know, it was just … we looked at the job, and we thought, okay, there’s some production work, but … not technical hurdles. It’s pretty easy. And then it just turned out that on the target platform that happened to be the one installed in their offices, it didn’t work right. (CloNet 4:23)” CloNet’s immediate response was to improvise. They scrambled to bring additional staff to the project and moved in rapid sequence from one technological approach to another. After experimenting with several approaches, including trying to get the customer to switch to a different platform technology, CloNet concluded that it was simply unable to improvise a solution to the problem.

“So what we ended up doing was saying, ‘okay, here’s all (your) money back. If anybody else can solve this problem, we’ll cooperate with them and support them, as needed, for free. Sorry we couldn’t do it…’” We punted … That was the verb we used at the time, we’re going to have to punt. (CloNet 20:19)”
This is an episode of repeated improvisation: the firm spent its resources on a series of improvised experiments in support of developing a solution that did not work in the end. However from this experience and especially the need to “punt” – which our respondents associated with the recognition that the firm was unable to improvise a solution to the problem – CloNet was able to infer a relatively subtle strategic lesson. Based on the multiple improvisational episodes, it began to establish routines that required project managers to create an initial contingency framework within which, for any substantial project, improvisation would be structured and evaluated. In the same founder’s words,

“That is one of the lessons learned, is if you can’t think of any alternatives for the one strategy you’ve got, you don’t have a strategy . . . because it won’t work. It’s not going to go exactly the way . . . you’ve got to have different stepping stones available to use… (CloNet 20:10)”

From the perspective of the two CloNet founders with whom we discussed the issue, the lessons learned from recognizing the failure and stopping the improvisation have been valuable, leading them to develop better (declarative) knowledge regarding when to improvise, and avoiding a repetition of the same sort of failure, “We’ve only had to actually punt just, like, once. This is our only unsolved, you know. (CloNet 21:11)”

A second case was remarkably similar in many respects, but led to very different outcomes. Under contract with a major new customer, information technology consulting firm DeaSoft created a software system that worked in its own test computers and operating environment, but when it was installed on the customer’s computers, it simply would not work. Wanting to solve the problem and avoid an embarrassing failure, DeaSoft immediately improvised, trying to do whatever they could to get the system to work, including flying additional staff to the customer’s site, and even engaging in an attempt to make unplanned changes to their customer’s computer operating environment.

DeaSoft did not find a solution. Much like CloNet, DeaSoft did not appear to have the ability to improvise a solution. Unlike CloNet, however, DeaSoft continued to improvise despite repeated improvisational experiments and failures, and remained committed to continued improvisational attempts to get the system to work. An eventual decision to stop the improvisation occurred only because the customer – rather than DeaSoft itself – labeled the improvisation a failure and put a stop to the continuing activity. Even at this point, DeaSoft remained reluctant to break their improvisational momentum and they continued to press the customer to give them one more shot at improvising a solution.

While CloNet recognized that they lacked the ability to improvise a solution to the problem they faced, DeaSoft did not appear to learn any such lesson. Although the firm labeled the event a “big disaster,” it did not infer the need for any change in its approach. Instead, the firm continued to understand the event as largely the customer’s fault or problem, re-emphasizing that in the end, what matters is that the customer paid for the technology even though it was useless to them. We saw above that CloNet’s failed improvisation and the indignity of having to punt led it to develop declarative knowledge about when to improvise in the form of explicit routines that structured how it would respond and manage future improvisation. In stark contrast, DeaSoft did not appear to exhibit any such declarative knowledge, or to learn anything from the failed continuous improvisation. Clarifying this point, we asked, “If you faced that same event again, would you handle it the same way?” The founder responded, “Well, I don’t think I had much choice, you know. I pleaded with them as much as I could. They essentially said, well, yes, you could be right, we’re not sure, but we can’t do anything about it. But they paid, so . . . (DeaSoft 29:2)”

Proposition 3: Firms with early declarative knowledge regarding routines for the use of improvisation are more likely to recognize and learn from improvisational failures than are firms that have only procedural knowledge.
DISCUSSION

Our study breaks new ground toward the study and understanding of the fundamentally important processes of firm-level entrepreneurial learning, and points toward a richer set of processes than are typically embraced by the organizational learning literature.

Absorptive Capacity and Absorptive Inertia

Absorptive capacity has become an important concept for understanding the differential ability of firms to learn and adapt to changing environments (Cohen & Levinthal, 1990; Zahra & George, 2002). Consistent with, though extending prior research, our results suggest that firms not prepared with the right sorts of prior knowledge suffer an inability to make use of knowledge available in their environments – and in particular from members of the networks in which they are embedded.

But our results also suggest a dynamic not uncovered in prior research. We found that exactly the same experiences that improve absorptive capacity may simultaneously increase what we labeled absorptive inertia, which is a decreased willingness and tendency to draw on knowledge embedded in other firms’ routines. The simultaneity of increases in absorptive capacity and absorptive inertia suggests the existence of an important temporal dimension to organizations’ likelihood of making productive use of external knowledge and routines.

These dynamics highlight an underlying learning design issue for young firms. If during early phases of learning the benefits of absorptive capacity dominate the limitations of absorptive inertia, and if in later phases absorptive inertia becomes dominant, then there is likely to be a limited window of learning during which firms can best take advantage of external knowledge and routines. For example, what is often referred to as “not invented here syndrome,” may be better understood as symptomatic of a learning window having closed instead of as an atemporal organizational bias. More generally, the juxtaposition of absorptive capacity and absorptive inertia raises important research questions regarding the timing of investments in knowledge acquisition, and suggests – along with our findings regarding the importance of early development of declarative knowledge – that temporal issues may deserve more attention than they have often received in theories of organizational learning.

Learning from Failure

Despite calls for more emphasis on organizational learning from failure, and a handful of studies that suggest rich possibilities for additional research (Haunschild & Miner, 1997; Kim & Miner, 2000; Sitkin, 1992), few studies have attempted detailed examination of how organizations learn from their own or other organizations’ experience of failure (Kim et al., 2000). Learning from failure (LF) represents a very valuable element of organizational learning. Failure often provides clearer and more useful information than does success (Lounama & March, 1987; Sitkin, 1992). Arguments from evolutionary and systems perspectives (Boulding, 1956; Campbell, 1969) suggest that some minimum amount of failure is essential to maintain requisite variety and adaptability in adaptive systems (Sitkin, 1992).

In contrast, the failure to learn from failure (FLF) represents a serious limitation to organizational learning. Prior research on FLF has suggested that organizations may fail to learn from failure because they deny or reinterpret bad news (e.g. as due to randomness and luck) and thus ignore the information value of failure (Sitkin, 1992). Sitkin argued that LF is most likely when thoughtful preplanning precedes a failed action and when the domain in which failure occurs is “familiar enough to permit effective learning (Sitkin, 1992: 554).” The preplanning and prior knowledge establish a context in which the firm can appropriately evaluate and diagnose sources of failure.
Extending this, our results suggest that the type of prior knowledge a firm brings to its attempts to build new capabilities strongly shape its ability to learn from failure. When routines generated failures, we observed that firms with declarative knowledge regarding their routines appeared better prepared to learn from the failures and change their routines. In contrast, firms that had only procedural knowledge appeared much less likely to learn from their experiences of failure. These results suggest that the accumulation of procedural knowledge dampens firms’ ability to learn from failure and that declarative knowledge provides some shield against this form of learning inertia.

The Importance of “Stopping Improvisation”

In a prior study of knowledge-intensive startup firms, Baker et al. (2003) showed that firms sometimes solve classes of repeated problems by persistently improvising solutions. That is, they develop repeated solutions through continuing reliance on improvisation. For example, they described a firm that became so good at improvising solutions to technical software problems that it never developed the ability to investigate and design a solution to fix the source of the problems.

We also found that young firms improvise and are vulnerable to improvisational momentum, which may hinder effective learning from improvisation and capability development in the long run. However, unlike Baker et al. (2003), we observed cases in which firms were able to decisively stop improvisation and break their improvisational momentum. While the earlier study stands as a warning about the dangers of over reliance on improvisation, our results suggest that whether and when organizations stop improvisational activities in favor of other patterns of behavior – e.g. preplanned activities or routines – can be influenced by the knowledge structure of founding team and the firms’ early learning. Those that develop declarative knowledge about improvisational routines early on appear better prepared both to manage the use of improvisation as a capability and also better prepared to gain additional knowledge about when to improvise and when to stop.

Implications for other Literature and for Practice

Emotion and organizational learning. Organization scholars have devoted considerable attention to establishing learning as an organizational phenomenon that incorporates but also transcends individual cognitive processes. Our finding about the important of distinguishing between declarative and procedural knowledge contributes to this perspective. Organizations do not have agency in exactly the same way that individuals have agency, but they have been shown to learn, to have memories and to differ in the extent of their accumulated knowledge (March, 1999; Miner & Mezias, 1996). However, despite the obvious importance of emotion and motivation to theories of individual learning, little research has explored the role of emotion in organizational learning. We expect that just as the notion of “organizational intelligence (March, 1999)” has proved useful to our understanding of adaptive processes in organizations, scholars might usefully develop the notion of “organizational emotion.”

While we are not prepared to fully develop such a construct in this paper, our data allowed us to observe a number of instances in which strong emotions seemed to play an important role in the learning processes we were studying. Like other researchers, we initially chose to treat learning and routines as “cool” rather than “warmer and more social (Schwartz, 1998)” processes, and to assume that emotions played no more than a sideline role. But the strength of the emotions that came across in our interviews – and which remain striking even in our written transcripts – introduce a sense of discomfort with our own and others characterizations of these processes. For example, the process we described as resulting in absorptive inertia comes across strongly as a sense of arrogance in the young cloning firm. A founder in the same firm described in an emotionally-charged way how they “pleaded” with the customer to allow the firm to continue trying to solve the problem. The firm that stopped its failed improvisation and learned from this failure was highly motivated to make these changes by its humiliation at having to recognize its own limitations and “punt,” a term that was repeated and appeared to resonate for more than one founder.
These and many other cases suggest that emotion may play a substantial and under recognized role in the relation between learning and routines.

Along similar lines, Winter (Cohen et al., 1996) noted that Nelson and Winter’s classic (Nelson & Winter, 1982) notion of “routine as truce” desiccates the conflict from this “story” because by the time the routine is observed all the tension and in our interpretation all the emotion is gone. As Winter further argued, the outcomes of routines are highly context dependent, and “motivational/relational” aspects of context play an important role. In short, he asks, “what is the explanation for the fact that the human beings involved in the performance are willing to do what they do? (Cohen et al., 1996: 662)” We agree that this is an important question and suggest that it should be broadened to include the role of emotion in the relationship between routines and entrepreneurial learning.

Implications for practice. Our observations have important implications for the construction of entrepreneurial management teams. In particular, they suggest that assembling a group of people who know how “to do” the key tasks of providing new goods and services may be insufficient. Instead, our results suggest that firms are more likely to be able to engage in the adaptive learning that is often essential to entrepreneurial success if the founders bring with them – or the firm develops early on – a balance between declarative and procedural knowledge. This balance may play a central role in the young firm’s ability to absorb external knowledge, and to learn from its own failures and improvisations.

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REFERENCES


