

LEARNING FROM EXPERIENCE AND LEARNING FROM OTHERS: HOW CONGENITAL AND INTERORGANIZATIONAL LEARNING SUBSTITUTE FOR EXPERIENTIAL LEARNING IN YOUNG FIRM INTERNATIONALIZATION

JOHAN BRUNEEL,^{1,2} HELENA YLI-RENKO,^{3*} and BART CLARYSSE^{1,2}

¹Imperial College Business School, Imperial College London, London, U.K.

²University of Gent, Faculty of Economics and Business Administration, Gent, Belgium

³University of Southern California, Lloyd Greif Center for Entrepreneurial Studies, Los Angeles, California, U.S.A.

This article addresses a critical issue for entrepreneurs and managers pursuing internationalization strategies: how firms can accumulate the knowledge and skills required for successful international expansion. Specifically, we examine how young firms may compensate for their lack of firm-level international experience by utilizing other sources of knowledge. Drawing on organizational learning theory, we develop an integrative framework that looks at the joint and interactive effects of experiential learning by the firm, the management team's pre-start-up international experience (i.e., congenital learning), and interorganizational learning from key exchange partners (customers, suppliers, investors, etc.). Utilizing empirical data on 114 young, technology-based firms in Flanders, Belgium, we find that a firm's level of international experience negatively moderates the effects of congenital and interorganizational learning on the extent of internationalization. That is, the lower a firm's experiential learning, the more significant the effects of the start-up team's prior international knowledge base and the knowledge and skills acquired through key partners. These results make important theoretical and empirical contributions to the international entrepreneurship and organizational learning literatures by highlighting some of the factors underlying learning advantages of newness that facilitate the internationalization of young firms and by explicating substitutive interrelationships among different learning mechanisms. Copyright © 2010 Strategic Management Society.

INTRODUCTION

Internationalization is a complex and uncertain process that poses significant challenges for any firm. For young firms, the expansion into foreign

markets is a particularly important and intricate decision—internationalization is increasingly a competitive necessity for such firms, especially in technology-based industries, but resource constraints and liabilities of newness exacerbate the challenges and risks involved (Autio, Sapienza, and Almeida, 2000; Oviatt and McDougall, 1994; Sapienza *et al.*, 2006). Entering foreign environments means that the firm's existing knowledge and capabilities are often not applicable, and the firm has to develop new knowledge and capabilities in order to succeed (Johanson and Vahlne, 1977, 1990; McDougall and

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*Correspondence to: Helena Yli-Renko, University of Southern California, Lloyd Greif Center for Entrepreneurial Studies, Bridge Hall One, Los Angeles, CA 90089–0801, U.S.A.
E-mail: hylirenko@marshall.usc.edu

Oviatt, 1996; Sapienza *et al.*, 2006). Accordingly, international business (IB) research has increasingly zeroed in on the critical question of how firms accumulate the knowledge and skills required for international expansion (e.g., Barkema, Bell, and Pennings, 1996; Lu and Beamish, 2004; Nadolska and Barkema, 2007; Petersen, Pedersen, and Lyles, 2008).

In addressing this question, the bulk of extant IB research has built upon the internationalization process theory (Johanson and Vahlne, 1977, 1990) and has, thus, focused on firm-level experiential learning, i.e., the gradual accumulation of knowledge as a firm expands its international activities. Taking the perspective of established multinational enterprises (MNEs), such studies have shown that a firm's international experience affects outcomes such as the financial performance of foreign subunits (Luo and Peng, 1999), the failure rates of FDI (Li, 1995; Barkema *et al.*, 1996), and even a firm's ability to learn from various types of subsequent international experiences (Barkema and Drogendijk, 2007). However, the insights generated by this research are of limited relevance for young firms that, by definition, lack experience.

Yet, many start-ups manage to expand into foreign markets, often exhibiting a pattern of early internationalization (Knight and Cavusgil, 2004; Yamakawa, Peng, and Deeds, 2008) that does not match the step-by-step process that the Uppsala stage model would predict. The international entrepreneurship (IE) literature has sought to explain this phenomenon, focusing on the antecedents, elements, and outcomes of internationalization for new firms (cf. Keupp and Gassmann, 2009; Zahra and George, 2002). As Keupp and Gassmann (2009) note in their recent review, the IE literature has uncovered an extensive set of personal-, firm-, industry-, and country-level factors that play a role in driving new firms to internationalize, and it has related these antecedents to various outcomes that have to do with internationalization patterns and performance. However, the *black box* that remains in IE research is the question of *why young firms are able to internationalize*, i.e., what elements such as 'strategic management, access to resources, knowledge, and information, firm capabilities, and innovatory advantages . . . enable entrepreneurial firms to internationalize . . .' (Keupp and Gassmann, 2009: 608).

In this article, we address this gap in the literature by drawing on organizational learning theory to develop an integrative framework that examines the

joint and interactive effects of different learning sources on the extent of internationalization of young firms. We specifically address the research question of whether young firms can compensate for their lack of firm-level international experience by utilizing other sources of knowledge as they pursue international expansion.

We examine two potential alternatives to experiential learning by the firm. First, we look at the congenital knowledge base that a firm's founders bring from previous international experiences (living abroad or working in an international context). We extend prior IE and export marketing research that has shown founders' prior experience to impact internationalization (e.g., Crick and Jones, 2000; Leonidou, Katsikeas, and Piercy, 1998; Reid, 1983; Reuber and Fischer, 1997; Ursic and Czinkota, 1989) by testing whether a start-up team's congenital knowledge base can compensate for a firm's lack of direct experience at the early stages of internationalization, and whether this effect diminishes as a firm gains experience. Second, we investigate learning from a young firm's portfolio of key exchange partners and whether a firm's level of international experience moderates the effects of such interorganizational learning on the extent of internationalization. In line with extant literature, we conceptualize the extent of internationalization in terms of both the scale and the scope of a firm's international sales (Fernhaber, Gilbert, and McDougall, 2008; Sullivan, 1994; Zahra and George, 2002); our measure weights a firm's foreign sales by the geographic and psychic¹ distance of each foreign region.

Our study makes three unique contributions to the IE and IB literatures. First, in developing and testing an integrative research model grounded in organizational learning theory, we answer calls for a richer understanding of how learning takes place in an international context (Cumming *et al.*, 2009; McDougall and Oviatt, 2005; Meyer, 2007; Simonin, 2004; Zahra, 2005). We distinguish between three sources of learning and examine whether congenital and interorganizational learning can act as substitutes for experiential learning. In so doing, we extend

¹The concept of psychic distance encompasses a range of factors preventing or disturbing the flow of information between potential or actual foreign exchange partners, associated with country-based differences in language, culture, and political/economic/legal environments (Johanson and Vahlne, 1977).

prior research that has suggested that young firms possess *learning advantages of newness* (Autio *et al.*, 2000; Sapienza *et al.*, 2006). These advantages refer to young firms' ability to build the knowledge and capabilities needed for internationalization, unencumbered by the inhibiting influences of previously developed routines, but also without the benefits of accumulated international experience (such as higher absorptive capacity [Barkema and Drogendijk, 2007] or an increased level of commitment to internationalization [Johanson and Vahlne, 1977]). Our study suggests that the ability to utilize a variety of different learning sources may be a key factor underlying learning advantages of newness—that by drawing on congenital or interorganizational learning to substitute for a lack of firm-level international experience, young firms can take advantage of the absence of constraining routines while compensating for their limited experiential knowledge base.

Second, we extend the research on interorganizational learning and internationalization beyond the context of alliances, joint ventures, acquisitions, and subsidiaries. Such formal organizational arrangements have received the bulk of attention in the IB literature (e.g., Lyles and Salk, 1996; Lane, Salk, and Lyles, 2001; Simonin, 2004), and they represent a specific type of interorganizational context in which the participating organizations typically have the common goal of exchanging and utilizing information and know-how. There is a paucity of research, however, on firms' interorganizational knowledge acquisition beyond formal interorganizational structures and the effects of such informal information sharing on internationalization. Prior research has proposed that during the course of conducting business, a firm is likely to acquire significant amounts of external knowledge from its customers, suppliers, and other exchange partners (Allen, 1979; von Hippel, 1987) and that such knowledge acquisition may, in fact, be more prevalent than the learning that takes place through formal alliances (Ganesan, Malter, and Rindfleisch, 2005). Learning from exchange partners has been suggested to be especially relevant for young, internationalizing firms (Coviello, 2006; Yli-Renko, Autio, and Tontti, 2002). We contribute to this stream of research by empirically measuring interorganizational learning across a young firm's portfolio of key exchange partners and by considering the role that such learning plays in the overall learning arsenal that facilitates young firms' internationalization.

Finally, our study bridges the established MNE perspective of the IB literature and the international new venture perspective of the IE literature, answering recent calls for more integrative, balanced theory building (Keupp and Gassmann, 2009). Where the IB literature has emphasized the accumulation and effects of international experience, the IE literature has tended to focus on the earliest stages of internationalization, examining motivations and drivers to initiate foreign activity (e.g., Brush, 1995; McDougall, Shane, and Oviatt, 1994; Oviatt and McDougall, 1994). Little attention, however, has been given in either literature to the questions of when firm-level international experience begins to play a role and how, in the meantime, young firms manage to compensate for their lack of experience. Extending prior research that has proposed that an internationalizing firm may learn at different rates depending on the stage of internationalization (Autio *et al.*, 2000; Nadolska and Barkema, 2007), the current study focuses on how the impact of different learning sources may vary in the process. In particular, we develop new theory on how firms may use other learning sources to compensate for a lack of first-hand experience in internationalization, and we empirically test these substitutive learning effects with empirical data on *young*—neither completely new nor mature—firms.

HYPOTHESES

Experiential learning

Firm-level experience has traditionally been considered the primary learning mechanism in internationalization. The Uppsala stage model (Johanson and Vahlne, 1977, 1990) was built on the tenet that firms gradually accumulate knowledge as they expand their international activities in incremental stages. In this model, the lack of knowledge about foreign markets and operations is considered the key obstacle to international expansion, and companies can overcome this knowledge gap mainly by operating abroad. Firms start with entry modes such as exporting that require less resource commitment, and they first enter markets that are geographically and psychologically proximate to the home country. Then, as they gain experience, the perceived risks related to internationalization decrease and the companies respond by committing more resources, utilizing higher-level entry modes such as foreign subsidiaries, and expanding into more distant markets.

This notion of experiential learning is rooted in the behavioral theory of the firm: an organization's behaviors and actions are viewed as based on past activities and previously developed routines (Cyert and March, 1963; Levitt and March, 1988). When internationalizing, the company learns about the foreign markets it targets and accumulates knowledge about how to set up international activities. As a firm conducts international activities, it changes its structures and routines to support further internationalization—it develops internationalization capabilities (Tallman and Fladmoe-Lindquist, 2002) and increases its absorptive capacity that facilitates future learning of new, related knowledge (Cohen and Levinthal, 1990).

Even though prior studies have confirmed that various types of international experience facilitate international expansion for established MNEs (e.g., Barkema *et al.*, 1996; Barkema and Vermeulen, 1998; Li, 1995; Luo and Peng, 1999), we are concerned here with the role that firm experience plays specifically in young firm internationalization and in conjunction with other learning mechanisms. Following the experiential learning logic of the Uppsala stage model, we propose that the more experience a young firm gains by deploying higher-level entry modes and the longer it conducts cross-border business activities, the more it learns about how to manage and control the complexity of international activities and the more it develops skills that facilitate future international expansion (Chang, 1995; Johanson and Vahlne, 1977; Martin and Salomon, 2003). As a result, the firm will be able to realize more foreign sales in markets that are more geographically and/or psychically distant. We present the following as our baseline hypothesis:

Hypothesis 1: The greater the firm-level experiential learning, the greater the extent of internationalization of a young firm.

Congenital learning

For firms that lack international experience, internationalization may be facilitated by the founders' knowledge base acquired during previous, pre-start-up international experiences (Oviatt and McDougall, 1994; Sapienza *et al.*, 2006). This type of congenital learning (Huber, 1991) arising from the knowledge stock brought into a firm at founding through its founders' past experiences will have an important imprinting effect on the firm's strategy (Boeker,

1989; Feeser and Willard, 1990). Previous actions and their outcomes are retained in the memory of the founders, resulting in interpretations and generalizations that can be drawn upon in decision making (Kim, 1993).

In our context, we focus specifically on the amount of time that founders lived abroad or worked in an international setting prior to starting the current business. Such congenital learning should impact a young firm's extent of internationalization through two mechanisms (cf. Leonidou, Katsikeas, and Piercy, 1998): (1) perceptions and attitudes and (2) capabilities and performance. First, the more international experience founders have, the more alert and exposed they will be to opportunities in foreign markets and the less risks they will perceive associated with internationalization. As a result, they are more likely to pursue an internationalization strategy in the first place (Brush, 1995; Oviatt and McDougall, 1994; Reid, 1983; Ursic and Czinkota, 1989) and, in the course of internationalizing, to venture out into foreign markets that are more distant geographically and psychically (Laanti, Gabrielsson, and Gabrielsson, 2007; Oviatt and McDougall, 1997). Second, international experience increases the founders' capabilities to formulate and execute their internationalization strategies and, thereby, improves the firm's international performance (Reuber and Fischer, 1997; Westhead, Wright, and Ucbasaran, 2001). That is, the more pre-start-up international experience the founders have, the better equipped they should be to overcome the challenges of operating across geographical and psychic distances and to successfully realize sales revenues in the foreign markets the firm enters. Therefore, we hypothesize:

Hypothesis 2a: The greater the congenital learning from the founding team at start-up, the greater the extent of internationalization of a young firm.

While prior research has provided support for the effects of congenital learning at the early stages of internationalization, there is little evidence concerning the persistence of such effects once the firm starts accumulating international experience. In the broader management literature, studies have established that a founder's background and a venture's founding strategy have a long-lasting impact on the firm's long-term performance (Cooper 1979; Feeser and Willard, 1990), but that these imprinting effects tend to fade as the firm experiences environmental variation that

requires it to adapt and change (Bamford, Dean, and McDougall, 1999; Boeker, 1989).

Following this logic, we expect a firm's level of experiential learning to moderate the effect of congenital learning on internationalization. That is, firms with lower levels of international experience should benefit more from congenital learning than firms with higher levels of international experience. At the early stages of internationalization, the founders' pre-start-up international experience essentially substitutes for the lack of firm-level international experience and plays a role in formulating and implementing initial internationalization strategy. But once the firm starts conducting international activities, we expect the learning effects of the congenital knowledge base to be trumped by firsthand experiential learning for three reasons. First, a firm's experiential learning is more recent and, therefore, more accurate and timely than the founders' pre-start-up experience. Second, since experiential learning arises from the focal firm's activities, it is more precisely targeted to the firm's specific foreign markets, processes, and products—as opposed to founders' pre-start-up experience which has taken place in a different context. Third, there are inherent inefficiencies and potential inaccuracies involved with transferring and applying knowledge from prior contexts (Dokko, Wilk, and Rothbard, 2009; Groysberg, Lee, and Nanda, 2008), whereas the firm's experiential learning can be more readily accessed and utilized.

When faced with multiple sources of information, entrepreneurs and managers will tend to satisfice, i.e., search sources only until a satisfactory answer is found (Simon, 1955), leading to a substitution dynamic in knowledge acquisition where the more relevant and accessible learning source will be utilized, resulting in a decreased impact for the alternative source(s) (Dokko *et al.*, 2009; Groysberg *et al.*, 2008; Haunschild and Beckman, 1998). Therefore, we propose that as a young firm gains more firsthand international experience through implementing foreign entry actions and operating in foreign markets for an increasing length of time, it will increasingly rely on experiential learning from the firm's own activities, and the importance of congenital learning will diminish. We hypothesize:

Hypothesis 2b: The lower a young firm's level of experiential learning, the more positive the relationship between congenital learning and the extent of internationalization.

Interorganizational learning

Extant research has shown that organizations learn from other organizations by accessing others' knowledge bases through interaction and observation (Levitt and March, 1988; Huber, 1991). In the context of internationalization, interorganizational learning studies have focused on explicating the organizational antecedents and performance outcomes of knowledge acquisition across a range of cross-border interorganizational arrangements (Dhanaraj *et al.*, 2004; Lyles and Salk, 1996; Lane *et al.*, 2001; Simonin, 2004). However, only recently have researchers begun to focus on the role that learning from the firm's broader network of exchange partners—as opposed to formal alliances, IJVs, or parent-subsidiary relationships—may play in internationalization (Chetty and Blankenburg Holm, 2000; Johanson and Vahlne, 2003; Oviatt and McDougall, 2005). Studies have proposed that such network relationships may influence international market entry and selection decisions, as well as facilitate international growth (Coviello and Munro, 1997; Johanson and Vahlne, 2003; Yli-Renko *et al.*, 2002).

In this article, we use the term *interorganizational learning* to encompass both vicarious learning, or modeling, that takes place as an organization observes and imitates other organizations (Denrell, 2003; Huber, 1991), as well as the transfer of knowledge that takes place through active exchanges between organizations (Lane and Lubatkin, 1998). We focus specifically on interorganizational learning from young firms' relationships with key exchange partners, i.e., the most important customers, suppliers, commercialization/technology partners, and investors. Prior research suggests that these key relationships are central in a firm's interorganizational learning, as they tend to involve higher levels of interaction and knowledge transfer and provide more strategically valuable knowledge (Dyer and Singh, 1998; Yli-Renko, Autio, and Sapienza, 2001).

Interorganizational learning can yield new knowledge and new capabilities (Lane and Lubatkin, 1998). First, a young firm's exchange partners represent an important source of knowledge specific to particular foreign markets (Johanson and Vahlne, 1977). The partners are typically larger, more established firms active in multiple markets (Yli-Renko *et al.*, 2001). Through interaction with them, the young firm will be able to acquire information about

customer needs and market trends, select the highest-potential foreign markets, and anticipate and prepare for the conditions in those markets. Exchange partners may also serve as bridges between the young firm and other organizations (Tiwana, 2008; Elango and Pattnaik, 2007). For example, investors are known for their networking activities; through their connections, investors can mobilize information about international markets (Carpenter, Pollock, and Leary, 2003; Smith, 2001).

Second, key exchange partners can also help the young firm develop foreign entry capabilities. The partners, as established organizations, will have processes in place for managing exchange relationships and conducting cross-border activities. Through observation, interaction, and emulation, a young firm that establishes a relationship with such a partner can develop corresponding routines and processes (Lane and Lubatkin, 1998). Developing this organizational complementarity in operating systems and decision-making processes enables coordinated interorganizational action and facilitates further learning (Dyer and Singh, 1998).

Note that such acquisition of foreign market knowledge and internationalization capabilities can take place even if the partner organization is located in the young firm's home market. The young firm can, in essence, learn secondhand from the partner's international experiences. Investors, while typically located in proximity to the investee firm, have been shown to serve as a source of learning in internationalization, as they share experiences in implementing internationalization strategies across their portfolio companies (Gupta and Sapienza, 1992).

By contributing to the development of foreign market knowledge and internationalization capabilities, interorganizational learning can decrease the perceived uncertainty and risk of internationalization, leading to an increased perception of international opportunities and a higher level of commitment to international expansion (Johanson and Vahlne, 2003, 2006). Further, learning from partners is also likely to contribute to the effectiveness, or success, of a young firm's international activities, resulting in more foreign sales realized in more geographically and/or psychically distant markets. Thus, we hypothesize:

Hypothesis 3a: The greater the interorganizational learning from key exchange partners, the greater the extent of internationalization of a young firm.

Although much of the literature seems to suggest that interorganizational learning will benefit all firms, it is likely that the impact on more experienced firms will differ from the impact on less experienced firms. We propose that firms taking initial steps in the international arena may benefit more from the knowledge and skills acquired through exchange partners than will more internationally experienced firms. That is, at the early stages of internationalization, interorganizational learning essentially substitutes for the lack of firm-level international experience and significantly influences the design and implementation of early internationalization strategy. But as the firm gains more international experience, the interorganizational learning effects should diminish.

While experiential learning arises from the focal firm's own activities, interorganizational learning involves the transfer of knowledge across organizational boundaries. This has implications for the efficiency of the knowledge transfer process as well as for the relevance of the knowledge that is transferred. First, prior research has shown that the costs of sharing know-how in interorganizational relationships are high and that effective mechanisms, such as relational governance norms, must be in place for interorganizational learning to occur (Dyer and Singh, 1998; Yli-Renko *et al.*, 2001). Thus, compared to internally developed knowledge, knowledge gained from partners is more difficult and costly to acquire. Second, since knowledge acquired through exchange partners originates from external sources, it is often not directly applicable to the focal firm and requires interpretation and adaptation (Baum, Li, and Usher, 2000). It also tends to be more exploratory in nature (Dijksterhuis, Van Den Bosch, and Volberda, 1999; Dyer and Singh 1998), and overall more risky and uncertain to utilize than the learning that arises from a firm's own experience. Given that firms will tend to rely on the most accessible and relevant knowledge sources (Haunschild and Beckman, 1998; Simon, 1955), we expect firms to draw on the more cost-effective and relevant experiential learning rather than the relatively more uncertain interorganizational learning, if both of these sources are available.

Extant research offers some empirical evidence to support the notion that the influence of learning from others decreases as new organizations gain experience. Shaver, Mitchell, and Yeung (1997) found that organizations with prior foreign direct investment experience gained relatively less from information

spillovers created by other foreign entrants. Similarly, Argote, Beckman, and Epple (1990) found that new shipyards learned production skills from other shipyards before making their own investment, after which they primarily benefited from their own experience.

In sum, we hypothesize that as a young firm gains more firsthand international experience through implementing foreign entry actions and operating in foreign markets for an increasing length of time, it will increasingly rely on experiential learning, and the importance of interorganizational learning for international expansion will diminish. Note that we are not saying a firm ceases to learn from its partners—we argue that the impact of this learning diminishes as the firm's experiential knowledge base accumulates. We hypothesize:

Hypothesis 3b: The lower a young firm's level of experiential learning, the greater the positive relationship between interorganizational learning and the extent of internationalization.

DATA AND METHODS

To test the hypotheses, we use a sample of young, technology-based firms in Flanders, Belgium. Our sampling criteria defined the firms as 12 years old or younger, conducting R&D activities, and developing and commercializing new products or services based upon a proprietary technology or skill. We focus on young firms because: (1) organizational learning is important for the firms' development and growth (Thornhill and Amit, 2003); (2) key external relationships have been shown to have a significant impact on young firms (Eisenhardt and Schoonhoven, 1996; Yli-Renko *et al.*, 2001); and (3) we wanted to capture congenital learning effects which may fade over time (Boeker, 1989). Focusing on *young* firms rather than *new* firms, which are typically defined as less than seven years old (e.g., Zahra, Ireland, and Hitt, 2000), enables us to also examine the effects of experiential learning (which accumulates over time). In fact, extant studies of experiential learning often encompass several decades of data (e.g., Baum and Ingram, 1998; Nadolska and Barkema, 2007). Further, the European context of our empirical study necessitates a higher age limit than is typical in U.S.-based entrepreneurship studies. Early-stage equity funding is not as readily available in Europe as in the U.S. (Lockett, Murray, and Wright, 2002), with

a particularly limited supply of venture capital in Belgium (Bygrave and Quill, 2007), and young firms have limited opportunities to go public (Martin, Sunley, and Turner, 2002). Less available capital results in longer development times for high-technology firms (Bürgel, 1999).² We focus on high-technology sectors because the dynamism in these sectors makes knowledge-building and the development of capabilities particularly salient (Eisenhardt and Schoonhoven, 1990). By focusing on one region, the unobserved heterogeneity among firms resulting from variance in environmental conditions is reduced. Flanders is a small, export-intensive economy in the northern part of Belgium and is considered to be an emerging high-tech region (Cantwell and Iammarino, 2001).

To identify the sample, four databases of firms in Flanders were used: (1) a database of firms in technology sectors; (2) a database of spin-offs from universities and research institutes; (3) a database of all firms that received government R&D subsidies; and (4) a database of companies in the portfolios of venture capital investors. Of the 1,003 firms initially identified, 247 met the definition of young, technology-based firm based on telephone screening. Of these firms, 210 were interviewed in the first round of data collection in 2002–03 for an earlier study (Heirman and Clarysse, 2004). The data for the present study were collected with structured face-to-face interviews with the founders/CEOs of the firms in 2005. By 2005, 22 of the original firms had gone bankrupt and six had been acquired. Of the 182 independent firms, we interviewed 114, yielding a response rate of 63 percent. Responding firms were not significantly different in size (number of employees) or age from nonrespondents, as indicated by Kolmogorov-Smirnov two-sample tests. The median age of the firms in the sample was six years at the time of data collection. The majority of the sample firms were small, with a median of seven employees and 650,000 Euros in sales revenues.

The founders/CEOs were targeted because they typically possess the most comprehensive knowledge of the firm's history, strategy, processes, and performance (Carter *et al.*, 1994). To reduce the potential for single-respondent/common-method

²To check for the potential effect that our higher age limit may have on results, we also performed our analyses with the 10-year cutoff that has been used in prior research on young firms (e.g., Yli-Renko *et al.*, 2001); the results of our hypothesis tests remained stable.

Table 1. Correlations and descriptive statistics of the variables in the model

	1	2	3	4	5	6	7	8
1 Experiential learning								
2 Congenital learning	0.13							
3 Interorganizational learning	0.20*	0.16						
4 Firm size at founding ^a	0.13	0.19*	0.08					
5 Founding capital ^{a,b}	0.05	0.27**	0.15	0.45***				
6 Firm age	0.54***	-0.10	0.05	-0.11	-0.25**			
7 Founding team exits	-0.01	-0.15	0.12	0.11	0.02	0.10		
8 Team additions	0.19*	0.10	0.13	0.19	0.33***	0.10	0.12	
9 Industry sector								
• Electronic equipment (<i>n</i> = 22)	0.04	-0.08	0.06	-0.04	-0.05	0.05	-0.03	-0.07*
• Biotechnology (<i>n</i> = 14)	-0.04	0.02	0.13	0.01	0.26*	-0.04	-0.02	0.09*
• Microelectronics (<i>n</i> = 11)	0.01	-0.00	0.03	0.00	0.12	0.03	-0.01	-0.02
• ICT (<i>n</i> = 46)	-0.02	-0.00	-0.12	0.18*	-0.14*	-0.03	0.10*	0.06
• Other (<i>n</i> = 21)	-0.00	0.07	-0.05	-0.19*	0.07	0.00	-0.04	-0.07*
Mean	5.59	8.65	7.32	3.21	558	6.75	0.19	0.27
Standard deviation	5.71	13.41	4.80	3.78	17,248	3.24	0.59	0.45
Min	0	0	0	1	3.72	2	0	0
Max	28	80	25	27	15,000	13	4	1

Pearson correlation coefficients; Kendall’s tau-b correlation coefficients for industry sector correlations (*n* = 114). *** *p* ≤ 0.001, ** *p* ≤ 0.01, * *p* ≤ 0.05.

^aLogarithm was used in correlations and regressions due to variable skewness; actual values used in descriptive statistics.

^bThousands of Euros.

bias, we used previously validated measures for the theoretical constructs (Spector, 1987). Further, we obtained secondary data from the National Bank of Belgium and the *BEL-FIRST* database³ to validate our self-reported data for a subset of the sample. We also performed Harman’s one-factor test to check whether common-method bias was present (Podsakoff and Organ, 1986). This test resulted in four factors with eigenvalues greater than one, with the first factor accounting for 23 percent of variance, indicating that common-method bias is not a problem in our data.

Measures

Table 1 presents the descriptive statistics and correlations for the variables in our study, and the Appendix lists the measurement items, confirmatory factor analysis results, and Cronbach alphas. The Appendix shows that all t-values are significant and the extracted variances range from 0.73 to 0.90, indicating that all constructs demonstrate good construct validity and reliability.

³*BEL-FIRST* is a financial database that contains detailed financial information on more than 320,000 Belgian companies. It is provided by Bureau van Dijk.

Extent of internationalization

The dependent variable in this study is the extent of internationalization, operationalized as a firm’s foreign sales weighted by the psychic and geographical distance of the foreign markets. Following the categorization approach of Sapienza, De Clercq, and Sandberg (2005), we assigned regions a weight that represents their geographical and psychic distance from the home market: a weight of 1 was assigned to EU countries, 2 to other European countries, 3 to North America, and 4 to the rest of the world. For each geographic region where a firm had realized sales revenues, we multiplied the sales (measured in Euros) generated in that region with the index weight. The sum of these weighted sales figures represents a firm’s extent of internationalization. Thus, our dependent variable encompasses the outcomes of internationalization in terms of both scale and scope (e.g., Fernhaber, Gilbert, and McDougall, 2008; Sullivan, 1994; Zahra and George, 2002). We used two secondary data sources to validate our dependent variable. We first corroborated the sales revenues reported in the survey with the figures extracted from the financial accounts available in *BEL-FIRST*; the correlation was very high (*r* = 0.88, *p* < 0.001, *n* = 39). Further, we obtained detailed

information about the percentage of sales generated in different geographical regions from the National Bank of Belgium; these data correlated very strongly with those reported in the survey ($r = 0.70$, $p < 0.001$, $n = 24$).

Experiential learning

As experiential learning takes place through the firm's experiences, and experiences accumulate over time, many studies have used the number of years a company has had international sales to measure this type of learning (e.g., Cavusgil and Zou, 1994; Erramilli, 1991). However, prior research has shown that in addition to the length of international exposure, the intensity of this exposure also plays an important role (Zahra *et al.*, 2000). To better capture this variation, we sought to measure the amount of experience a firm has gained by taking entry modes into account. The type of entry mode used will influence the amount of learning that takes place (Holmund and Kock, 1998); e.g., realizing foreign sales through exports requires limited interaction with the foreign environment, whereas firms with foreign subsidiaries will have a physical presence with daily activities in the foreign market. Zahra *et al.* (2000) showed that high-control entry modes increase the breadth, depth, and speed of technological learning of international ventures. In line with previous studies (e.g., Calvet, 1981), we categorized entry modes into three levels: 1 = exports and licensing, 2 = distributor agreements, and 3 = foreign subsidiary; this categorization represents the learning intensity of each type of entry mode. Next, we multiplied the number of years the firm has experience with each entry mode with the entry mode's learning intensity. The experiential learning measure was then created by summing this number across the firm's entry modes.

Congenital learning

Congenital learning represents the international knowledge base of the founders at start-up. International knowledge accumulates over time—individuals who have many years of international experience are likely to have more knowledge and skills related to internationalization than their less experienced counterparts (Cavusgil and Zou, 1994). In line with prior research (e.g., Carpenter, Sanders, and Gregersen, 2001; Sambharya, 1996; Sullivan, 1994), we use the number of years of prior international experience—including both living abroad and working in an international context—to measure a founder's international

knowledge base at start-up. The firm-level variable was created by summing up the number of years across all of the firm's founders.

Interorganizational learning

To capture the extent of interorganizational learning, we focused on the relationships between the young firms and their key partners. Building on Dyer and Singh (1998) and Yli-Renko *et al.* (2001), we asked each firm to identify their most important partners, specifically their key supplier, customer, partner for commercial activities (e.g., distributor), partner for technology development, and investor. We used two statement items to measure the extent to which the young firm perceives that it has learned from each of its key partners in the context of internationalization: (1) Our company has acquired new or important information about foreign markets from this key partner; and (2) This key partner has helped us to build our capabilities/skills toward internationalization. These items were developed based on Yli-Renko *et al.* (2001) and Lane and Lubatkin (1998). We added the scores across the five partner categories in order to reflect our conceptual focus on the overall interorganizational learning from the firm's portfolio of key exchange relationships.

Control variables

Because international growth requires both financial and human resources, we included the firm's starting financial capital and the number of employees at founding as control variables. We verified the self-reported employee numbers by using secondary data extracted from the *BEL-FIRST* database ($r = 0.83$, $p < 0.001$, $n = 86$). Further, we included the age of the firm (expressed in number of years) as it may influence internationalization outcomes (Autio *et al.*, 2000; Sapienza *et al.*, 2006). We also included two control variables to capture changes in the management team since founding: (1) the number of founders that had left the company since start-up; and (2) whether or not new managers with international experience had joined the team (binary variable). Since the nature of the firm's business and its operating environment can influence its propensity to initiate and grow international sales (Cavusgil and Zou, 1994), we also included industry-sector dummy variables. We grouped our sample firms into five industry sectors: electronic equipment, biotechnology, microelectronics, information and communications technology (ICT), and other high technology.

Table 2. Linear regression estimates of extent of internationalization

	Model 1	Model 2	Model 3	Model 4	Model 5
<i>Control variables</i>					
Firm size at founding	1.39	0.91	0.75	1.02	0.89
Founding capital	1.05*	0.74**	0.82**	0.70*	0.77*
Firm age	4.72***	1.04	1.07	1.26	1.25
Founding team exits	-0.66	-0.37	-0.27	-0.06	-0.03
Team additions	2.02	1.00	0.56	0.93	0.61
Sector	Yes	Yes	Yes	Yes	Yes
<i>Learning variables</i>					
Experiential learning		0.49*	0.51*	0.48*	0.49*
Congenital learning		0.01	0.03	0.01	0.03
Interorganizational learning		0.27*	0.25*	0.26*	0.25*
<i>Interaction terms</i>					
Congenital learning x experiential learning			-0.007**		-0.005*
Interorganizational learning x experiential learning				-0.03**	-0.03**
Constant	-20.12**	-13.84**	-14.59***	-13.48***	-14.09***
Adjusted R ²	0.26	0.50	0.51	0.51	0.51
F	5.64***	10.35***	9.92***	10.22***	9.65***
P		0.001	0.004	0.027	0.022
d.f. (residual)	104	101	100	100	99

Unstandardized coefficients. One-tailed tests for theorized (directional) effects. Two-tailed tests for control variable effects. *** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$.

RESULTS

Table 2 presents the results of the hypothesis tests using multiple regression analysis. In Model 1, we included only the control variables. In Model 2, we added the three learning variables. We observe that the coefficient for experiential learning is positive and significant (0.49, $p \leq 0.05$), providing support for Hypotheses 1. The coefficient for congenital learning is positive but not significant; thus, Hypothesis 2a is not supported. The coefficient for interorganizational learning is positive and significant (0.27, $p \leq 0.05$), providing support for Hypotheses 3a. In control variable effects, our results show a significant positive relationship between the level of founding capital and the extent of internationalization, indicating that a strong financial resource base facilitates international expansion. Firm age has a significant effect in Model 1, but this effect disappears when experiential learning is entered in Model 2. Given that experience accumulates with age, and that the number of years a firm has implemented foreign entry actions factors into the measurement of our experiential learning variable, it is not surprising that the firm age control variable in Model 1

would capture some of the experiential learning effect.

In Models 3 to 5, we introduced the interaction effects between experiential learning and congenital learning and between experiential learning and interorganizational learning. Before entering the interaction terms into the model, we first centered the variables and created the interaction terms in order to reduce multicollinearity (Aiken and West, 1991). We examined the variance inflation factors in the models and found them all to be at accepted levels, ranging from 1.11 to 2.35. Since all variance inflation factors are well below 10, multicollinearity does not pose a problem (Neter, Wasserman, and Kutner, 1990).

Hypothesis 2b predicted a negative moderating effect for experiential learning on the relationship between congenital learning and the extent of internationalization. The interaction term experiential learning x congenital learning is negative and significant (-0.005, $p \leq 0.05$), indicating that Hypothesis 2b is supported: the lower the level of experiential learning, the greater the positive relationship between congenital learning and internationalization. Similarly, Hypothesis 3b predicted a

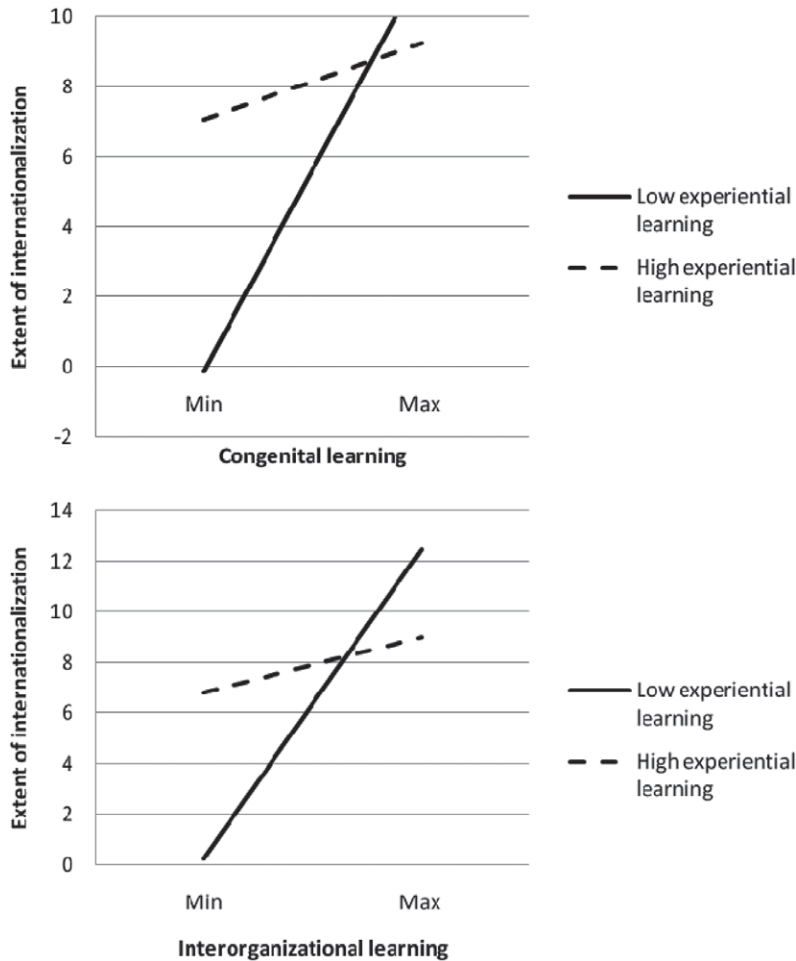


Figure 1. Interaction effects of (a) congenital and experiential learning and (b) interorganizational and experiential learning on the extent of internationalization
 Note: Low experiential learning = one standard deviation below the mean; high experiential learning = one standard deviation above the mean.

negative moderating effect for experiential learning on the relationship between interorganizational learning and the extent of internationalization. The interaction term experiential learning x interorganizational learning is negative and significant ($-0.03, p \leq 0.01$), indicating that Hypothesis 3b is supported: the lower the level of experiential learning, the greater the positive relationship between interorganizational learning and internationalization.

Figure 1 illustrates the significant interaction effects found for Hypotheses 2b and 3b. We conducted simple slope analyses (Aiken and West, 1991) to examine the impact of congenital and interorganizational learning on internationalization at two different levels of experiential learning (one

standard deviation above the mean and one standard deviation below the mean). We see that for both congenital and interorganizational learning, the relationship with the extent of internationalization has a steeper slope at the lower level of experiential learning.

We conducted a sensitivity analysis to further examine the significance of these substitution effects. A decrease of one standard deviation below the mean on experiential learning results in an 18 percent decrease in the extent of internationalization. If this decrease in experiential learning is coupled with a one standard deviation increase in congenital learning, the result is a 10.4 percent decrease from the original level of internationalization. If the decrease

in experiential learning is coupled with a one standard deviation increase in interorganizational learning, the result is a 0.9 percent decrease from the original level of internationalization. Finally, if the decrease in experiential learning is coupled with a one standard deviation increase in both congenital and interorganizational learning, the result is a 4 percent increase over the original level of internationalization. These analyses clearly demonstrate the economic significance of congenital and interorganizational learning as viable substitutes to experiential learning in facilitating young firm internationalization.

DISCUSSION

In this article, we addressed the fundamental question of why young firms are able to internationalize (Keupp and Gassmann, 2009) by examining how young firms can compensate for a lack of international experience by utilizing other learning sources. We found that a firm's level of international experience negatively moderates the effects of congenital and interorganizational learning on the extent of internationalization. That is, the lower a firm's experiential learning, the more significant the effects of the start-up team's prior international knowledge base and the knowledge and skills acquired through the firm's portfolio of key exchange partners.

Our research model integrated insights from the IE, IB, and organizational learning literatures. While extant research has focused separately on how firms learn from: (1) firm-level prior international experience (e.g., Barkema and Vermeulen, 1998; Chang, 1995; Luo and Peng, 1999); (2) the congenital knowledge base that founders and managers bring from previous international experiences (e.g., Carpenter *et al.*, 2003; Oviatt and McDougall, 1994; Reuber and Fischer 1997; Ursic and Czinkota, 1989); and (3) the knowledge acquired through cross-border interorganizational alliances, joint ventures, or acquisitions (e.g., Lyles and Salk, 1996; Lane, Salk, and Lyles, 2001; Simonin, 2004), few studies have examined how a firm's learning arsenal operates as a whole or have provided theoretical or empirical consideration as to whether and how the learning mechanisms may interact in influencing internationalization outcomes. The current study represents, to our knowledge, the first attempt to examine these important issues in the context of young firm internationalization.

Theoretical implications and contributions

Our research extends the process theory view of internationalization and helps reconcile it with recent entrepreneurship perspectives. In the Uppsala model, Johanson and Vahlne (1977, 1990) posited that a firm's experience in implementing internationalization activities drives subsequent international commitment and expansion. Consistent with this view, our data showed a significant positive relationship between experiential learning and the extent of internationalization. Yet, consistent with prior IE research (e.g., Knight and Cavusgil, 2004; Yamakawa *et al.*, 2008), our data also displayed the early internationalization of young firms—the majority of our sample firms had international activities, with a median of 40 percent of sales coming from abroad, even though the median age of the firms was only six years. The results of our hypothesis tests highlight two learning-based explanations for the internationalization of young firms.

First, we hypothesized that congenital learning, represented by the founding team's pre-start-up international experience, may influence young firms' extent of internationalization. In our sample of young (not new) firms, we did not observe a significant direct effect of congenital learning. However, we hypothesized and found that the effect of congenital learning was moderated by the level of experiential learning. Firms with low levels of experiential learning benefited significantly from congenital learning, but this imprinting effect of the pre-start-up knowledge base was diminished for firms with more firsthand experience. This finding contributes to the IE literature by addressing the question of the persistence of the effects of the founding team and serves to reconcile some of the mixed results of previous studies regarding the relationship between founders' international experience and firm internationalization. While many have found strong founding team effects on the propensity to internationalize (e.g., Reuber and Fischer, 1997; Reid 1983, Oviatt and McDougall, 1995), there is less evidence of the longer-term impact on the extent of internationalization. For example, Contractor, Hsu, and Kundu (2005) did not find an association between entrepreneurs' international experience and the firms' export intensity or export growth. Our finding suggests that the pre-start-up international experience of the founding team has a transitory influence on firm internationalization—congenital learning may compensate for a lack of experiential learning at the early

stages of internationalization, but this imprinting effect diminishes as the firm gains firsthand international experience.

Second, we found strong support for our hypothesis that learning from key partners can fuel the internationalization process of young firms. This finding serves to empirically validate recent claims in the internationalization literature regarding the importance of business network relationships. For example, Johanson and Vahlne (2003, 2009) suggested that a firm's relationships influence the choice of markets to enter and the entry modes used, and Oviatt and McDougall (2005) proposed that relationships facilitate young firms' internationalization by providing access to new knowledge, helping entrepreneurs identify new market opportunities, and introducing the firm to local networks. By empirically measuring the extent to which young firms perceive that their key exchange relationships facilitate the acquisition of foreign market knowledge and the development of internationalization capabilities, our study serves to highlight interorganizational learning as an important mechanism through which business relationships influence internationalization. This finding contributes not only to the internationalization literature but also to the broader interorganizational relationship literature by extending the focus from formal alliances, joint ventures, and acquisitions to a firm's broader set of exchange relationships and by extending the set of outcomes that have been studied. Previous studies have found that knowledge transfer and spillovers between exchange partners can benefit, for example, new product development (Deeds and Hill, 1996; Yli-Renko and Janakiraman, 2008), marketing skill development (Simonin, 1999), and sales cost efficiency (Yli-Renko *et al.*, 2001). Our findings indicate that such learning effects also hold when the focal outcome is the extent of internationalization.

Further, we proposed that learning through exchange partners could substitute for learning by doing. Our results provided support for this hypothesis by showing that the lower the level of experiential learning, the stronger the positive relationship between interorganizational learning and the extent of internationalization. This finding suggests that, at the early stages of internationalization, young firms achieve a higher extent of internationalization by acquiring knowledge and developing skills through exchange partners. As they accumulate international experience, experiential learning becomes more important and the firms become less dependent on

secondhand information and imitation of other organizations' skills. Lane *et al.* (2001) speculated on a similar diminishing effect for interorganizational learning from an IJV's parent, but they did not formally hypothesize or empirically observe it in their emerging market IJV context. We sought to conceptually develop the underlying substitution argument and proposed that this dynamic is due to the higher efficiency and relevance of experiential learning over interorganizational learning. Knowledge acquisition from exchange partners requires costly governance mechanisms and is more difficult to acquire compared to internally developed knowledge. Thus, if both sources are available, firms will tend to rely on internal experiential learning rather than external interorganizational learning. However, experienced firms do not cease to learn from their partners, but the impact of such interorganizational learning diminishes as the level of experiential learning increases. From a managerial standpoint, this finding highlights the strategic importance of drawing on the firm's network of partners to gain foreign market knowledge and internationalization capabilities, especially early on in the firm's internationalization process.

By showing that congenital and interorganizational learning are more influential at lower levels of experiential learning, we illustrate how these two alternatives to experiential learning may, in essence, be factors that explain the existence of learning advantages of newness. While prior research has suggested that such advantages result from the lack of previously developed routines that could constrain the firm's extent and success of international activities (Autio *et al.*, 2000; Sapienza *et al.*, 2006), the question that has remained is why young firms seem to be able to benefit from the increased flexibility associated with a lack of experience and not suffer from the downsides of a limited experiential knowledge base. Our findings suggest that an ability to draw on alternative sources of knowledge may be an important compensating mechanism that may partly explain the existence of learning advantages of newness.

The higher relative impact of congenital and interorganizational learning at the early stages of internationalization also suggests a temporal element to the phenomenon of internationalization which several scholars have emphasized and which is still relatively unstudied (Jones and Coviello, 2005; Zahra, 2005). By showing that the impact of different learning sources varies depending on a firm's

level of experience, we extend prior research that has proposed that an internationalizing firm may learn at different rates depending on the stage of internationalization (Autio *et al.*, 2000; Nadolska and Barkema, 2007). While our findings underscore the central role of experiential learning, thus providing support for the cornerstone of the Uppsala model even in a young-firm context, they also shed new light on how a firm's experience may interact with the firm's founders and the firm's network relationships to impact learning and internationalization. In line with prior IE research, our findings confirm that the founders' prior knowledge base plays an important role at the early stages of internationalization but, interestingly, also indicate that this effect is transitory, tending to fade as the firm's experiential learning kicks in. In line with Johanson and Vahlne's (2009) recent conceptual revisit of their model, our findings highlight the role interorganizational relationships play in internationalization through both direct and interactive learning effects. Overall, then, our study suggests an important temporal perspective to the internationalization process and puts forth a view of internationalization as dynamic interplay between different learning mechanisms—over the course of the internationalization process, emerging multinationals can draw on a range of learning mechanisms, but the availability and utility of these mechanisms will vary.

Limitations and directions for future research

As every empirical piece, our study is not without limitations, thereby providing avenues for future research. First, our dataset is comprised of 114 young, technology-based firms located in Flanders. Although this has the beneficial effect of reducing unobserved heterogeneity, it raises the question of whether our results would hold in other environments and for other types of firms. Flanders, as a small, open, networked economy, provides a research setting where young firms are prone to internationalize early on, management team members often have prior international experience, and a young firm is likely to have key business relationships from which it can gain foreign market knowledge and internationalization capabilities. However, there is no reason to believe that the theoretical foundations of our study would not also apply to firms operating in larger, less open markets. Even though the availability of alternative knowledge sources may vary depending on context, the substitutive relationships

between the different learning mechanisms should hold. Nevertheless, further studies with larger samples across different regions and industries would contribute to the generalizability of our findings. Second, given the cross-sectional nature of our data and its inherent survivor bias, we cannot provide insights into the causal dynamics of learning and internationalization or the potential effects on firm survival. The research design also does not allow testing for changes in the role of the company's exchange partners at different phases of the internationalization process. Future longitudinal studies could shed light on such dynamics and the survival outcomes of learning and internationalization. Third, by focusing solely on the five key exchange partners of each company, we examined a limited subset of the firms' relationships, ignoring the effects that the size of the firm's network may have on learning outcomes. Comprehensive studies of a firm's entire portfolio of relationships are, of course, difficult to execute.

While beyond the scope of the current study, future research should examine the conditions under which interorganizational learning from exchange partners occurs and explicate the processes through which this learning takes place. Factors such as the location and knowledge base of the partner organization, the specific type of business relationship, the relative absorptive capacity of the dyad (Lane and Lubatkin, 1998), and the social capital embedded in the relationship could be included in future research. Also, given that we observed a positive effect of a firm's level of starting capital on the extent of internationalization, it might be fruitful to study in more depth how a firm's tangible resources are deployed to spur internationalization and how they may influence or interact with the firm's knowledge base. Future studies could consider additional dependent variables—such as the speed of internationalization—and examine how the various learning mechanisms may increase the pace of international expansion (Oviatt and McDougall, 2005). Finally, our findings may have implications beyond the context of internationalization: the same substitution dynamics between congenital, interorganizational, and experiential learning might be found in domestic growth, acquisitions, and new product development, for example.

In conclusion, the context of young firm internationalization provides rich opportunities for examining how knowledge is accumulated through various learning mechanisms. Organizational learning

theory, in turn, offers a productive conceptual lens for the continued investigation of the internationalization process. This study aimed at providing new insight on how firm and founder experience and interorganizational learning interact to facilitate young firm internationalization and, thus, explicated some of the mechanisms underlying learning advantages of newness. We hope that our results will prompt further research in this area.

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REFERENCES

- Aiken LS, West SG. 1991. *Multiple Regression: Testing and Interpreting Interaction*. Sage: Thousand Oaks, CA.
- Allen RC. 1979. Collective invention. *Journal of Economic Behavior and Organization* **4**(1): 1–24.
- Argote L, Beckman SL, Epple D. 1990. The persistence and transfer of learning in industrial settings. *Management Science* **36**: 140–154.
- Autio E, Sapienza HJ, Almeida JG. 2000. Effects of age at entry, knowledge intensity, and imitability on international growth. *Academy of Management Journal* **43**(5): 909–924.
- Bamford CE, Dean TJ, McDougall PP. 1999. An examination of the impact of initial founding conditions and decisions upon the performance of new bank start-ups. *Journal of Business Venturing* **15**: 253–277.
- Barkema HG, Bell JHJ, Pennings JM. 1996. Foreign entry, cultural barriers, and learning. *Strategic Management Journal* **17**(2): 151–166.
- Barkema HG, Drogendijk R. 2007. Internationalising in small, incremental, or larger steps? *Journal of International Business Studies* **38**: 1–17.
- Barkema HG, Vermeulen F. 1998. International expansion through start-up or acquisition: a learning perspective. *Academy of Management Journal* **41**: 7–26.
- Baum JAC, Ingram P. 1998. Survival-enhancing learning in the Manhattan hotel industry: 1898–1980. *Management Science* **44**: 996–1016.
- Baum JAC, Li SX, Usher JM. 2000. Making the next move: how experiential and vicarious learning shape the locations of chains acquisitions. *Administrative Science Quarterly* **45**: 766–801.
- Boeker W. 1989. Strategic change: the effects of founding and history. *Academy of Management Journal* **32**(3): 489–515.
- Brush CG. 1995. *International Entrepreneurship: The Effects of Firm Age on Motives for Internationalization*. Garland Publishing: New York.
- Bürgel O. 1999. The internationalisation of British start-up companies in high-technology industries. PhD dissertation, University of Warwick, Warwick Business School.
- Bygrave WD, Quill M. 2007. Global Entrepreneurship Monitor. 2006 Financing Report. Wellesley-London, Babson College and London Business School.
- Cantwell J, Iammarino S. 2001. EU regions and multinational corporations: change, stability, and strengthening of technological comparative advantages. *Industrial and Corporate Change* **10**(4): 1007–1037.
- Calvet AL. 1981. A synthesis of foreign direct investment theories and theories of the multinational firm. *Journal of International Business Studies* **12**: 43–59.
- Carpenter MA, Sanders GW, Gregersen HB. 2001. Building human capital with organizational context: the impact of international assignment experience on multinational firm performance and CEO pay. *Academy of Management Journal* **44**(3): 493–511.
- Carpenter MA, Pollock TG, Leary MM. 2003. Testing a model of reasoned risk taking: governance, the experience of principals and agents, and global strategy in high-technology IPO firms. *Strategic Management Journal* **24**(9): 803–820.
- Carter NM, Stearns TM, Reynolds PD, Miller BA. 1994. New venture strategies: theory development with an empirical base. *Strategic Management Journal* **15**(1): 21–41.
- Cavusgil ST, Zou S. 1994. Marketing strategy performance relationships: an investigation of the empirical link in export market ventures. *Journal of Marketing* **58**(1): 1–21.
- Chang SJ. 1995. International expansion strategy of Japanese firms: capability building through sequential entry. *Academy of Management Journal* **38**(2): 383–407.
- Chetty S, Blankenburg Holm D. 2000. Internationalization of small- to medium-sized manufacturing firms: a network approach. *International Business Review* **9**(1): 77–93.
- Cohen WM, Levinthal DA. 1990. Absorptive capacity: a new perspective on learning and innovation. *Administrative Science Quarterly* **35**: 128–152.
- Contractor FJ, Hsu C-C, Kundu SK. 2005. Explaining export performance: a comparative study of international new ventures in Indian and Taiwanese software industry. *Management International Review* **45**: 83–110.

- Cooper AC. 1979. Strategic management: new ventures and small business. In *Strategic Management*, Schendel DE, Hofer CW (eds). Little Brown: Boston, MA; 316–327.
- Cortina JM. 1993. What is coefficient alpha? An examination of theory and applications. *Journal of Applied Psychology* **78**: 98–104.
- Coviello N. 2006. Network dynamics in the international new venture. *Journal of International Business Studies* **37**(5): 713–731.
- Coviello N, Munro H. 1997. Network relationships and the internationalisation of small software firms. *International Business Review* **6**(4): 361–386.
- Crick D, Jones MV. 2000. Small high-technology firms and international high-technology markets. *Journal of International Marketing* **8**(2): 63–85.
- Cumming D, Sapienza HJ, Siegel DS, Wright M. 2009. International entrepreneurship: managerial and policy implications. *Strategic Entrepreneurship Journal* **3**(4): 283–296.
- Cyert RM, March JG. 1963. *A Behavioral Theory of the Firm*. PrenticeHall: Englewood Cliffs, NJ.
- Deeds DL, Hill, CWL. 1996. Strategic alliances and the rate of new product development: an empirical study of entrepreneurial biotechnology firms. *Journal of Business Venturing* **11**: 42–55.
- Denrell J. 2003. Vicarious learning, undersampling of failure, and the myths of management. *Organization Science* **14**(3): 227–243.
- Dhanaraj C, Lyles M, Steensma HK, Tihanyi L. 2004. Managing tacit and explicit knowledge transfer in IJVs: the role of relational embeddedness and the impact on performance. *Journal of International Business Studies* **35**(5): 428–443.
- Dijksterhuis M, Van Den Bosch FAJ, Volberda HW. 1999. Where do new organization forms come from? Management logics as a source of coevolution. *Organization Science* **10**: 569–582.
- Dokko G, Wilk SL, Rothbard NP. 2009. Unpacking prior experience: how career history affects job performance. *Organization Science* **20**(1): 51–68.
- Dyer JH, Singh H. 1998. The relational view: cooperative strategies and sources of interorganizational competitive advantage. *Academy of Management Review* **23**(4): 660–679.
- Eisenhardt KM, Schoonhoven CB. 1990. Organizational growth: linking founding team, strategy, environment, and growth among U.S. semi-conductor ventures, 1978–1988. *Administrative Science Quarterly* **35**(3): 504–530.
- Eisenhardt KM, Schoonhoven, CB. 1996. Resource-based view of strategic alliance formation: strategic and social effects in entrepreneurial firms. *Organization Science* **7**: 136–150.
- Elango B, Pattnaik C. 2007. Building capabilities for international operations through networks: a study of Indian firms. *Journal of International Business Studies* **38**: 541–555.
- Erramilli KM. 1991. The experience factor in foreign market entry behavior of service firms. *Journal of International Business Studies* **3**: 479–501.
- Feesser HR, Willard GE. 1990. Founding strategy and performance: a comparison of high and low growth firms. *Strategic Management Journal* **11**(2): 87–98.
- Fernhaber SA, Gilbert BA, McDougall PP. 2008. International entrepreneurship and geographic location: an empirical examination of new venture internationalization. *Journal of International Business Studies* **39**: 267–290.
- Ganesan S, Malter AJ, Rindfleisch A. 2005. Does distance still matter? Geographic proximity and new product development. *Journal of Marketing* **69**: 44–60.
- Grant RM, Baden-Fuller C. 2004. A knowledge accessing theory of strategic alliances. *Journal of Management Studies* **41**(1): 61–84.
- Groysberg B, Lee LE, Nanda A. 2008. Can they take it with them? The portability of star knowledge workers' performance: myth or reality? *Management Science* **54**: 1213–1230.
- Gupta AK, Sapienza HJ. 1992. Determinants of venture capital firms preferences regarding the industry diversity and geographic scope of their investments. *Journal of Business Venturing* **7**(3): 347–362.
- Haunschild PK, Beckman CH. 1998. When do interlocks matter? Alternate sources of information and interlock influence. *Administrative Science Quarterly* **43**: 815–844.
- Heirman A, Clarysse B. 2004. How and why do research-based start-ups differ at founding? A resource-based configurational perspective. *Journal of Technology Transfer* **29**(3–4): 247–268.
- Holmund M, Kock S. 1998. Relationships and the internationalization of Finnish small- and medium-sized companies. *International Small Business Journal* **16**: 46–63.
- Huber GP. 1991. Organizational learning: the contributing processes and the literatures. *Organization Science* **2**(1): 88–115.
- Johanson J, Vahlne E. 1977. The internationalization process of the firm: a model of knowledge development and increasing foreign market commitments. *Journal of International Business Studies* **8**(1): 23–32.
- Johanson J, Vahlne E. 1990. The mechanisms of internationalization. *International Marketing Review* **7**(4): 11–24.
- Johanson J, Vahlne E. 2003. Business relationship learning and commitment in the internationalisation process. *Journal of International Entrepreneurship* **1**: 83–101.
- Johanson J, Vahlne E. 2006. Commitment and opportunity development in the internationalization process: a note on the Uppsala internationalization process model. *Management International Review* **46**: 165–178.

- Johanson J, Vahlne E. 2009. The Uppsala internationalization process model revisited: from liability of foreignness to liability of outsidership. *Journal of International Business Studies* **40**(9): 1411–1431.
- Jones MV, Coviello NE. 2005. Internationalization: conceptualizing an entrepreneurial process of behavior in time. *Journal of International Business Studies* **36**: 270–283.
- Keupp MM, Gassmann O. 2009. The past and future of international entrepreneurship: a review and suggestions for developing the field. *Journal of Management* **35**(3): 600–633.
- Kim D. 1993. The link between individual and organizational learning. *Sloan Management Review* **35**(1): 37–50.
- Knight GA, Cavusgil ST. 2004. Innovation, organizational capabilities, and the born-global firm. *Journal of International Business Studies* **35**(2): 124–141.
- Laanti R, Gabriellsson M, Gabriellsson P. 2007. The globalization strategies of business-to-business born global firms in the wireless technology industry. *Industrial Marketing Management* **36**(8): 1104–1117.
- Lane PJ, Lubatkin M. 1998. Relative absorptive capacity and interorganizational learning. *Strategic Management Journal* **19**(5): 461–477.
- Lane PJ, Salk J, Lyles M. 2001. Absorptive capacity, learning, and performance in international joint ventures. *Strategic Management Journal* **22**(12): 1139–1161.
- Leonidou LC, Katsikeas CS, Piercy NF. 1998. Identifying managerial influences on exporting: past research and future directions. *Journal of International Marketing* **6**(2): 74–102.
- Levitt B, March JG. 1988. Organizational learning. *Annual Review of Sociology* **14**: 319–338.
- Li J. 1995. Foreign entry and survival: effects of strategic choices on performance in international markets. *Strategic Management Journal* **16**(5): 333–352.
- Lockett A, Murray G, Wright M. 2002. Do U.K. venture capitalists still have a bias against investment in new technology firms? *Research Policy* **31**: 1009–1030.
- Lu J, Beamish PW. 2004. International diversification and firm performance: the S-curve hypothesis. *Academy of Management Journal* **47**(4): 598–609.
- Luo Y, Peng M. 1999. Learning to compete in a transition economy: experience, environment, and performance. *Journal of International Business Studies* **30**(2): 278–307.
- Lyles MA, Salk J. 1996. Knowledge acquisition from foreign parents in international joint ventures: an empirical examination in the Hungarian context. *Journal of International Business Studies* **27**(5): 877–903.
- Martin R, Sunley P, Turner D. 2002. Taking risks in regions: the geographic anatomy of Europe's emerging venture capital market. *Journal of Economic Geography* **2**: 121–150.
- Martin X, Salomon R. 2003. Tacitness, learning, and international expansion: a study of foreign direct investment in a knowledge-intensive industry. *Organization Science* **14**(3): 297–311.
- McDougall PP, Oviatt BM. 1996. New venture internationalization, strategic change, and performance: a follow-up study. *Journal of Business Venturing* **11**(1): 23–40.
- McDougall PP, Oviatt BM. 2005. Defining international entrepreneurship and modeling the speed of internationalization. *Entrepreneurship Theory and Practice* **29**(5): 537–554.
- McDougall PP, Shane S, Oviatt BM. 1994. Explaining the formation of international new ventures: the limits of theories from international business research. *Journal of Business Venturing* **9**: 469–487.
- Meyer KE. 2007. Contextualizing organizational learning: Lyles and Salk in the context of their research. *Journal of International Business Studies* **38**(1): 27–37.
- Nadolska A, Barkema HG. 2007. Learning to internationalise: the pace and success of foreign acquisitions. *Journal of International Business Studies* **38**: 1170–1186.
- Neter J, Wasserman W, Kutner MH. 1990. *Applied Linear Statistical Model*. Richard D. Irwin Inc.: Boston, MA.
- Nunnally J. 1967. *Psychometric Theory*. McGraw-Hill: New York.
- Oviatt BM, McDougall PP. 1994. Toward a theory of international new ventures. *Journal of International Business* **24**: 45–64.
- Oviatt BM, McDougall PP. 1995. Global start-ups: entrepreneurs on a worldwide stage. *Academy of Management Executive* **9**: 30–44.
- Oviatt BM, McDougall PP. 1997. Challenges for internationalization process theory: the case of international new ventures. *Management International Review* **2**(37): 85–99.
- Oviatt BM, McDougall PP. 2005. Defining international entrepreneurship and modeling the speed of internationalization. *Entrepreneurship Theory and Practice* **24**: 537–553.
- Petersen B, Pedersen T, Lyles M. 2008. Closing knowledge gaps in foreign markets. *Journal of International Business Studies* **39**(7): 1097–1113.
- Podsakoff DM, Organ DW. 1986. Self-reports in organizational research: problems and prospects. *Journal of Management* **12**: 532–544.
- Reid S. 1983. Firm internationalization, transaction costs, and strategic choice. *Journal of International Business Studies* **2**: 44–56.
- Reuber RA, Fischer E. 1997. The influence of the management team's international experience on the internationalization behaviors of SMEs. *Journal of International Business Studies* **28**: 30–45.
- Sambharya R. 1996. Foreign experience of top management teams and international diversification strategies of U.S. multinational corporations. *Strategic Management Journal* **17**(9): 739–746.
- Sapienza HJ, De Clercq D, Sandberg WR. 2005. Antecedents of international and domestic learning effort. *Journal of Business Venturing* **20**(4): 437–457.

- Sapienza HJ, Autio E, George G, Zahra S. 2006. A capabilities perspective on the effects of early internationalization on firm survival and growth. *Academy of Management Review* **31**(4): 914–933.
- Shaver JM, Mitchell W, Yeung B. 1997. The effect of own-firm and other-firm experience on foreign direct investment survival in the United States: 1987–1992. *Strategic Management Journal* **18**(10): 811–824.
- Simon HA. 1955. A behavioral model of rational choice. *Quarterly Journal of Economics* **69**: 99–118.
- Simonin BL. 1999. Transfer of marketing know-how in international strategic alliances: an empirical investigation of the role and antecedents of knowledge ambiguity. *Journal of International Business Studies* **30**(3): 463–490.
- Simonin BL. 2004. An empirical investigation of the process of knowledge transfer in international strategic alliances. *Journal of International Business Studies* **35**(5): 407–428.
- Smith G. 2001. How early-stage entrepreneurs evaluate venture capitalists. *Journal of Private Equity* **4**(2): 33–45.
- Spector PE. 1987. Method variance as an artifact in self-reported affect and perception at work: myth or significant problem? *Journal of Applied Psychology* **73**: 443–483.
- Sullivan D. 1994. Measuring the degree of internationalization of a firm. *Journal of International Business Studies* **25**: 325–342.
- Tallman S, Fladmoe-Lindquist K. 2002. Internationalization, globalization, and capability-based strategy. *California Management Review* **45**: 116–135.
- Thornhill S, Amit R. 2003. Learning about failure: bankruptcy, firm age, and the resource-based view. *Organization Science* **14**(3): 497–509.
- Tiwana A. 2008. Do bridging ties complement strong ties? An empirical examination of alliance ambidexterity. *Strategic Management Journal* **29**(3): 251–272.
- Ursic ML, Czinkota MR. 1989. The relationship between managerial characteristics and exporting behaviour. *Developments in Marketing Science* **12**: 208–210.
- von Hippel E. 1987. Cooperation between rivals: informal know-how trading. *Research Policy* **16**: 291–302.
- Westhead P, Wright M, Ucbasaran D. 2001. The internationalization of new and small firms: a resource-based view. *Journal of Business Venturing* **16**: 333–358.
- Yamakawa Y, Peng MW, Deeds DL. 2008. What drives new ventures to internationalize from emerging to developing countries. *Entrepreneurship Theory and Practice* **32**: 59–82.
- Yli-Renko H, Autio E, Sapienza HJ. 2001. Social capital, knowledge acquisition, and knowledge exploitation in young, technology-based firms. *Strategic Management Journal* **22**(6–7): 587–613.
- Yli-Renko H, Autio E, Tontti V. 2002. Social capital, knowledge, and the international growth of technology-based new firms. *International Business Review* **11**: 279–304.
- Yli-Renko H, Janakiraman R. 2008. How customer portfolio affects new product development in technology-based entrepreneurial firms. *Journal of Marketing* **72**: 131–148.
- Zahra SA. 2005. A theory of international new ventures: a decade of research. *Journal of International Business Studies* **36**: 20–28.
- Zahra SA, George G. 2002. International entrepreneurship: the current status of the field and future research agenda. In *Strategic Entrepreneurship: Creating an Integrated Mindset*, Hitt M, Ireland D, Sexton D, Camp M (eds). Blackwell: Cambridge, MA; 255–288.
- Zahra SA, Ireland RD, Hitt MA. 2000. International expansion by new venture firms: international diversity, mode of market entry, technological learning, and performance. *Academy of Management Journal* **43**(5): 925–950.

APPENDIX

Table A1. Variables, measurement items, confirmatory factor analysis, and Cronbach alphas

Factor name	Measurement items	Parameter estimate	T-statistic ^a	Cronbach α	Variance extracted
Extent of internationalization	Foreign sales in each geographical region weighted by an index reflecting the geographical and psychic distance from the home country	5.98	14.77		
Experiential learning	Years of international experience weighted by the learning intensity of the entry mode used	5.75	14.77		
Congenital learning	Sum of the number of years of pre-start-up international experience of the firm's founders (includes working internationally and living abroad)	13.56	14.77		
Interorganizational learning from key:	Sum of the averaged scores of each of the five key exchange partners				
(a) supplier	Item 1: Our company has acquired new or important information about foreign markets from this key partner ^b Item 2: This key partner has helped us to build our capabilities/skills toward internationalization	1.40	12.20	0.89	0.90
(b) customer	Item 1 Item 2	1.84	6.43	0.65 ^c	0.73
(c) commercial partner	Item 1 Item 2	1.97	6.58	0.80	0.82
(d) technology partner	Item 1 Item 2	2.23 1.70	14.77 11.84	0.87	0.89
(e) investor	Item 1 Item 2	1.52 1.95	12.06 14.77	0.82	0.86
Firm size	Item 1 Item 2	1.41 1.76	9.97 9.97		
Founding capital	Number of employees at founding, logarithm	0.77	14.77		
Firm age	Starting capital at founding, logarithm	1.88	14.77		
Founding team exits	Number of years lapsed since founding	0.44	14.77		
Team additions	Number of founders that had left the company since start-up Whether or not new internationally experienced management team members had joined the management team since start-up (binary variable)	0.60 0.45	14.77 14.77		

^aAll T-statistic are significant at $p \leq 0.001$.

^bStatement-style items were measured on a Likert-scale from 1 = do not agree to 7 = completely agree.

^cAlthough many researchers consider 0.70 to be the acceptable limit for the Cronbach alpha reliability measure, others have argued that 0.60 is adequate (Nunnally, 1967). Given that alphas tend to be lower with fewer items (Cortina, 1993) and that our two measurement items have been validated in previous studies, the lower alpha for this one key exchange partner category should not pose a problem.