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Cognition and international entrepreneurship: Implications for research on international opportunity recognition and exploitation

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Abstract
International entrepreneurship (IE) research has grown rapidly, encompassing many industries and world regions. Past IE research has examined the macro, industry and firm-specific variables that lead to companies' early internationalization and its financial and non-financial outcomes. Most prior IE research has been correlational in focus and static in design. Focusing on early internationalization, we propose that a significant shift can occur in IE research by applying a cognitive perspective and examining how entrepreneurs recognize and exploit opportunities in international markets. A cognitive approach will allow researchers to probe entrepreneurs' motivations to internationalize and capture their mental models. The article highlights the benefits to be gained from and the challenges associated with using a cognitive approach to IE research.

Keywords: international entrepreneurship, cognition, opportunity

Research on international entrepreneurship (IE) has grown rapidly over the past decade, reflecting the important issues facing entrepreneurs as they internationalize their operations. Accumulating research findings have led IE researchers to revise the domain of their research territory (Zahra and George, 2002a; Zahra and George, 2002b). As a result,

born global (McDougall and Oviatt, 2003; Oviatt and McDougall, 1994) and established companies (Birkinshaw, 1997) alike are being analyzed in IE research. Researchers have also incorporated multiple theoretical perspectives to explain the antecedents, processes and effects of IE. Currently, research on IE is being conducted in the world's six major continents, with specialized conferences, doctoral consortia and journals devoted to diverse IE phenomena. IE articles and symposia are now routinely included in established conferences and leading academic journals (McDougall & Oviatt, 2003).

The breath-taking speed by which IE research has grown and become so accepted has led some to question the cumulative value-added of this research. Some IE research has been creative in offering rich insights into complex issues. Other research simply mirrors international business (IB) or strategy research, ignoring IE's unique territory. While we strongly favor integrative and cross-disciplinary research, we worry that the distinctive and rich IE territory is not fully exploited in theory building, research design, or analysis. This has given IE research a mechanical quality that has impoverished theory building and has limited the overall impact of prior findings. The boundaries of the phenomena being examined have also changed to the point that one has to ask: What does IE research cover? What is unique about this research? What is IE's distinctive competence? These and similar questions have already prompted Zahra and George (2002a, 2002b) to review the IE literature and attempt to reconcile contradictory findings.

1. Focus and objectives

In this article, we argue that research on early internationalization would benefit from giving attention to the territory being studied and the motivations for internationalization. Studying these issues requires researchers to probe and understand entrepreneurial cognition and how it influences the choices that companies make. While a cognitive approach has its shortcomings, it offers multiple advantages that can enrich the literature. We believe that the 'mechanical' quality of some early internationalization research could be overcome by using an alternative theoretical lens such as cognition that recognizes the importance of both the economic and non-economic motivations in shaping the content and process decisions relating to early internationalization. The cognitive perspective also provides important clues about how entrepreneurs might perceive and construct their industries' boundaries and opportunities at home and in host countries. A cognitive approach can be fruitful in studying born globals (i.e. companies that are created to compete internationally from inception) and established companies.

In order to set the stage for our argument, Section 2 discusses the importance and diversity of motivations that lead entrepreneurs to internationalize their operations early. These motivations have been overlooked in prior studies, creating a serious gap in IE research. Next, the article analyzes the importance of recognizing the context of IE decisions and activities. It concludes by highlighting the vital importance of connecting explanations of IE decisions to their geographic context, with all related cultural, ideological and technological complexities. Once this has been completed, the article discusses the need for a cognitive perspective on IE decisions in order to better connect the content of these decisions with the processes that generate them and the global context in which they are

formulated and executed. The discussion also analyzes the strengths and weaknesses of a cognitive approach. On the whole, the article makes the case for using this perspective to understand how entrepreneurs move from thought to action and how their motivations might shape IE decisions.

2. Motivation for early internationalization

Noting the growing recognition of IE and the variety of topics covered under this broad label, McDougall and Oviatt (2003) have revised their definition of IE as "the discovery, enactment, evaluation, and exploitation of opportunities—across national borders—to create future goods and services" (p. 7). This definition builds on a growing view that entrepreneurship, in born globals and established companies alike, centers on the recognition and exploitation of opportunities. Some opportunities are located and discovered; others are the result of a process of enactment where the entrepreneur conceives of an idea and gives it meaning.

Entrepreneurs, whether in born globals or established companies, take considerable risks as they pursue opportunities in international markets. Understanding the factors that lead to variations in organizational success in international markets is a major topic in IE research (McDougall, Shane, & Oviatt, 1994). Differences in performance arise from the quality of opportunities, their location, and the creativity of modes of exploitation entrepreneurs might use. They also arise from differences in the way companies learn as they internationalize their operations and the types of learning they gain. For instance, Zahra, Ireland, and Hitt (2000) have argued that new venture (defined as companies six years or younger) internationalization induces technological learning which was found to be positively associated with subsequent company performance. The modes of entry into these firms had used in internationalizing their operations early were also related to their subsequent performance. Those findings have shown that IE had important financial implications for companies and entrepreneurs (Zahra et al., 2000). Yet, these researchers have missed an opportunity to directly account for new ventures' motivations to internationalize their operations.

Research underscores the importance of a firm's goals in recognizing the pattern, speed and effects of its international activities (Brush, 1993 & 1995). This motivation determines the selection and effective execution of the various activities necessary to create the firm and build its international operations. Motivation also influences the way the firm configures its operations, selects the scale and scope of its operations, and assembles and allocates its various tangible and intangible resources in international markets. These variables define the boundaries of the firm's international opportunities, the learning that might occur internationally, and the dedication of resources needed to integrate and exploit the knowledge gained by interacting with the market and competition. These strategic choices also entail serious risks and can depress born globals' performance and increase the odds of failure. Decisions on the scale and scope of international operations are made based on born globals' market definition, current and potential resources, networks of alliances and collaborators, and requirements for success in the markets to be entered. Entrepreneurs' egos, preferences and hubris also influence these decisions.

The mechanical quality that characterizes some prior IE research stems from the limited attention given to understanding born globals' motivations to internationalize or how these motivations change over time. One reason is that some of prior IE research has been atheoretical. IE researchers have also borrowed heavily from more established disciplines. This might be a useful first step in framing the IE literature, but continuing this practice might frustrate theory development efforts and reduce our ability to argue compellingly for the distinctiveness of IE research, especially in the case of born globals. Given the intricate link between entrepreneurs' personal objectives and needs, and their goals for the companies they form, we need to better appreciate entrepreneurs' motivations to internationalize.

Understanding born globals' motivations to internationalize is important also for gauging future success and failure (Brush, 1995; Zahra et al., 1996). These motivations influence the firm's culture and IE activities (Dimitratos & Plakoyiannaki, 2003). Born globals expanding abroad often pursue different goals and one must factor these goals into any analysis of their success and failure. Even though some prior analyses control for the importance of various goals in gauging the results of internationalization, they ignore how the constellations of motivations shape born globals' strategic actions. Some of these motivations are deeply imbedded in the entrepreneur's own needs and personality. Other motivations reflect the nature of the competitive landscape of the venture's domestic environment and industry setting. Still, other motivations mirror the interaction of the entrepreneur's different needs and ambitions with the external market realities and challenges. Given the dynamic nature of these variables, some changes are likely to occur in the motivations that drive born globals' internationalization and their abilities to withstand the challenges associated with this process. By tracking these changes and understanding when and how they occur, researchers can gain a realistic view of IE activities.

Ghoshal (1987) observes that innovation, learning and adaptation are important strategic objectives for companies that expand internationally. He argues that firms learn from societal differences in organizational and managerial processes and systems (p. 428). Autio, Sapienza, and Almeida (2000) suggest that new ventures enjoy learning advantages that established multinational companies do not have. Zahra et al. (2000) show empirically that new ventures (i.e. firms six years or younger) were more adept at learning about technology in international markets, especially when higher modes of market entry were used. Zahra et al. also propose that technological learning in international markets is multifaceted and influences new ventures' subsequent growth and profitability. Yet, several conditions should exist for the firm to learn from international operations: the firm should set learning as one of its objectives and must create the mechanisms and systems for learning to occur (Ghoshal). Learning thrives also by the effective integration of newly acquired knowledge and transforming it into new products, systems and processes (Zahra & George, 2002a).

Understanding the motivation to internationalize can reveal how entrepreneurs define their international arena and how they go about building their firm's market position. These motivations also help to explain how resources are allocated and strategic priorities are set. For IE research, these motivations can provide a clearer link between decision makers (i.e. entrepreneurs) and the choices global firms make.

3. The territory, the map and IE theorizing

Reviewing prior IE research, Zahra and George (2002b) conclude that greater attention has been given to the content of new venture internationalization strategies than to the process by which these strategies are developed and implemented. Most prior analyses also appear to overlook the internal and external context in which these strategies are conceived. The political milieu in which these strategies are crafted makes a significant difference, as do the competitive forces in the industry.

In reviewing IE research, one quickly notices how little effort has been given to mapping the territory and using this understanding to include the rich contextual variables in the analyses. To be sure, researchers mention these variables in their papers and routinely control for several contextual variables such as age, size, intensity of competition, and industry performance (Autio et al., 2000; Bloodgood et al., 1996; Zahra et al., 1996, 2000). This practice is commendable and enhances our confidence in prior findings. Yet, researchers ignore one of the richest sources of the differences in organizational performance in domestic and international markets: how the firm conceptualizes its competitive terrain and constricts its competitive strategy to both offset the limitations of this terrain while exploiting the opportunities it offers. By focusing on the visible attributes of this terrain, IE researchers appear to equate the map with the territory. The territory (i.e. competitive arena), of course, has its topography, inhabitants, and physical boundaries (Bartlett and Ghoshal, 2000; Hofstede, 1993). The map (i.e. the issues being investigated), however beautifully drawn, is a simplification of the geo-physical, political and cultural realities of the IE territory. The map, by necessity, reflects a researcher's biases and skills. Better theories could be developed by considering the qualities of the IE territory and appreciating the role of geography and history play in shaping entrepreneurs' mental models and the strategies they craft. These theories could also clarify the effect of these models in shaping the strategic process associated with early internationalization.

Canvassing and mapping the IE territory brings us closer to the realities which entrepreneurs face. Thus, it can challenge and enrich our espoused theories of internationalization and born globals. It can also prompt us to conduct more authoritative research that unites both content and process, while considering the motivation of key organizational actors involved in mapping the firm's IE decisions. In his insightful review of the IB literature, Melin (1992) notes the importance of longitudinal research studies. Melin describes four types of such studies. The first is a "time series of detached critical *events*, or *state*s" (p. 101). Here, researchers usually study events that are disjointed in time. The second focuses on examining short *episodes* or several episodes in sequence or parallel. The third focuses on *long epochs*, which are characterized by significant and oftentimes radical changes. The fourth and final type is *biographic histories*. Each of these types of studies has a place in the literature and could enrich our understanding of how IE decisions emerge and take shape over a long period of time. We have seen little attention being given in IE research to process studies, making it difficult to decipher the intent and motivation of the various actors involved in the process, their various roles, their incentives and the dynamics of their relationships. Ignoring process variables also

makes it difficult to understand how opportunities are spotted, identified or pursued. Likewise, IE research has not documented the histories and experiences of entrepreneurs behind these moves. The effects of managers' experiences, ownership, rewards and relative standing within their organizations have also escaped careful observation or analysis.

Understanding how companies craft their IE strategies, for instance, requires us to delve more deeply into their managers' international orientation. Perlmutter (1969) distinguishes between the geocentric, polycentric and ethnocentric firms and shows how these orientations influence the choice of the strategic arena and competitive weapons. Maisonrouge (1983) suggests that managers' international orientation determines the strategic choices companies make. Dunning (1988) also discusses the importance of psychic distance in his eclectic paradigm, arguing that this distance is an important source of locational advantage. Sullivan (1994), in his attempt to develop a measure of the degree of firm internationalization also recognizes the crucial importance of the "psychic dispersion of international operations" (p. 332). Sullivan's work capitalizes on prior research suggesting that these psychic zones manifest very different "cognitive maps" of the principles that guide managerial decision-making and practice (Hofstede, 1993). Ronen and Shenkar (1985) divide the world into 10 psychic zones based on cultural and linguistic differences. Kobrin (1994) also observes that managerial mindsets might have implications for the geographic scope of a firm's international operations. These mindsets reflect the entrepreneur's perceptions and views of the world and the relationship their firms *should* have with others. They also reflect entrepreneurs' ideas about the relative standing of his/her country's cultural, technological and economic position relative to others. Some of these mindsets are ethnocentric (i.e. believing in the superiority of the home country) and therefore suggest a view of strategy based on exploiting what the firm has done at home and how it exports to new foreign markets. Other mindsets accept the diversity of the human experience; they hold that there are similarities across countries but significant differences exist as well. These views would encourage a differentiation approach to pursuing international opportunities.

Firms that conduct their international operations in countries that are close in terms of their psychic differences might encounter challenges similar to those firms that operate in significantly different psychic zones (O'Grady & Lane, 1996). Even neighboring countries differ significantly in their cultural and economic institutions. Thus, for those born globals that enter neighboring countries might experience the same difficulties that they might encounter in distant markets. Born globals may not have the experience and resources to systematically analyze and understand the markets they enter. Dealing with these differences could be a source of frustration, but it might also inspire and promote rapid organizational learning (Zahra et al., 2000). Born globals learn by doing, from their successes as well as failures. This learning can change managers' mindsets in ways that profoundly influence firms' future IE decisions. These mindsets reflect and shape the firm's culture, further shaping IE decisions (Dimitratos & Plakoyiannaki, 2003). Understanding and capturing these mindsets can be accomplished by adopting a cognitive approach to IE research.

4. Entrepreneurial cognition, opportunity and IE

Stevenson and Jarillo's (1990) opportunity-based definition of entrepreneurship has become widely accepted in the literature (Brown, Davidsson, & Wiklund, 2001). This definition coincides with Austrian economists' views of entrepreneurship as opportunity seeking, recognition and exploitation through novel resource recombinations (Kirzner, 1973; Schumpeter, 1975). These opportunities exist in domestic and international markets (Zahra and Dess, 2001; Zahra and Garvis, 2000). Building on these views, Shane and Venkataraman (2000: 218) proffer that entrepreneurship research addresses three key questions: (1) Why, when, and how do opportunities for the creation of goods and services come into existence? (2) Why, when, and how do some people and not others discover and exploit these opportunities? and (3) Why, when, and how are different modes of action used to exploit entrepreneurial opportunities? IE researchers address these questions, giving attention to the discovery, framing and exploitation of entrepreneurial opportunities across international borders.

Several conventional IB theories have shaped our thinking about IE, including the product life cycle theory (Vernon, 1966), transaction cost theory (Teece, 1986), network perspective (Gargiulo and Benassi, 2000; Johanson and Mattsson, 1988; Reagans and Zuckerman, 2001), Uppsala internationalization model (Johanson and Vahlne, 1977, 1990), and resource-based view (Delios and Beamish, 2001; Dunning, 1988, 1998), among others. Even though some of these theories (e.g. the product life cycle and transaction cost) have not been used extensively in prior empirical IE studies McDougall et al. (1994) have questioned the adequacy of these theories in explaining IE phenomena, calling for new and richer theoretical perspectives.

Some IE researchers assume that entrepreneurs and managers are rational and well-informed. According to this view, entrepreneurs can compare the production costs in different countries, calculate the costs related to different governance mechanisms, and identify opportunities for leveraging their strategic assets in foreign markets. However, other research holds that managerial cognition is rationally bounded and is influenced by managers' experiences and environmental conditions (March and Simon, 1958; Weick, 1995; Wood and Bandura, 1989). Cognitive biases also influence entrepreneurs' decisions. These biases include temporal and spatial myopia (Levinthal & March, 1993), overconfidence (Busenitz & Barney, 1997), competitive myopia (Johnson & Hoopes, 2003), and the illusion of control. Researchers also note that managers' behaviors are governed by their self-efficacy, mental models, motivations, and perceptions (Wood & Bandura, 1989). For example, managers' and entrepreneurs' perceptions often determine their responses to their external environments (Gersick, 1991) as well as their definition of viable entrepreneurial opportunities.

5. International opportunity identification and exploitation

IE is about opportunity identification and exploitation in foreign markets. Consequently, understanding how entrepreneurs think and make decisions to identify and exploit these opportunities is necessary to the development of the field (Shane & Venkataraman, 2000). While other perspectives (e.g. strategic choice and networks) have their important place

in the literature and have been applied successfully in prior studies (Zahra and George, 2002a, 2002b; Zahra et al., 2000), a cognitive approach can eliminate some of the prevailing but unrealistic assumptions about the way entrepreneurs make their IE decisions, allowing us to consider the rational and non-rational elements in their decision-making. Such non-rational elements can have as profound effects on entrepreneurs' decisions as much as rational variables.

The cognitive approach has its roots in psychology and sociology. Psychologists have demonstrated that people's internal attributes (e.g. need for achievement, locus of control, tolerance for ambiguity, emotional stability, and risk-taking propensity) are stable and differ from person to person. They have also shown that differences in psychological profiles determine why some individuals, and not others, identify certain entrepreneurial opportunities and behave differently toward these opportunities. These psychological attributes are also related to entrepreneurial orientation (Begley and Boyd, 1987; Miller and Droge, 1986; Miller et al., 1982; Miner, 2000), defined as a person's willingness to take the risks associated with creating new companies and exploit these opportunities. For example, compared with non-founders, business founders have higher scores on risk-taking propensity and tolerance of ambiguity (Begley & Boyd). Miller et al. (1982) also found that top executives with an internal locus of control were more likely to pursue riskier competitive strategies than those with an external locus of control. These results help to explain why certain individuals may discover and then pursue certain IE opportunities as well as their proactiveness in exploiting these opportunities.

Sociologists posit that entrepreneurs' cognition is environment-constrained. They hold that entrepreneurs are embedded in a social context and the interaction between entrepreneurs and their environment plays a major role in shaping their cognitive process and, consequently, behaviors. Sociologists suggest that entrepreneurs' cognitive styles reflect their experiences as well as their environment. Experience conditions entrepreneurs to gather and analyze certain types of information quickly. Indeed, Day and Lord (1992) conclude that, compared to a novice, experts (i.e. persons with significant experiences) are more schema-driven when making decisions, probably because the heuristics developed through past experience enable entrepreneurs to make sense of given issues quickly. Thus, explaining why an entrepreneur focuses on a particular venture idea in an international market while ignoring others requires an appreciation of the entrepreneur's history and her/his interactions and experiences with other cultures. The entrepreneur's education, functional expertise (e.g. design engineer) and past track records of success and failures also shape her/his perceptions of the viability of different strategic options being considered. Born globals' international strategies are apt to reflect their entrepreneurs' functional expertise and track records in domestic and international markets.

Sociologists further suggest that entrepreneurs' cognition is constrained by their external cultural, institutional, political, and technological environments (Thomas & Mueller, 2000). Indeed, certain cognitive scripts are related to cultural values (Mitchell, Smith, Seawright, & Morse, 2000), reinforcing a need to study the institutional setting in which entrepreneurs make decisions about the foreign markets to target, the scope of the opportunity, the scale of their firm's international operations, mode of entry, desired payback periods, and the financial and non-financial goals they pursue.

Organizations such as born globals are also believed to have cognitive systems, exhibiting the shared beliefs and information of the members of their dominant coalitions (Daft & Weick, 1984). These cognitive systems relate to organizational identity (Fiol and O'Connor, 2002; Scott and Lane, 2000), schematic frameworks (McNamara, Luce, & Tompson, 2002), top management beliefs (Ginsberg, 1990), and dominant logic (Prahalad & Bettis, 1986). These systems, in turn, influence the decisions born globals make by prompting entrepreneurs to seek certain types of data, give greater weight to particular pieces of data or interpret them in specific ways, and emphasize particular international opportunities. Cognitive systems also influence entrepreneurs' decision rules, decision horizons, and risk preferences. These variables significantly influence born globals' strategic choices as they expand internationally.

Clearly, entrepreneurial cognition is not always rational. Mitchell et al. (2000) define entrepreneurial cognition as the "knowledge structures that people use to make assessments, judgments, or decisions involving opportunity evaluation, venture creation, and growth." While the psychological approach holds that entrepreneurs' cognition may be misled by their internal forces (e.g. hubris), the sociological approach proffers that entrepreneurs' rationality is constrained by their external environment and past experiences. Further, the cognitive approach emphasizes the importance of self-efficacy, people's beliefs in their capabilities (Wood & Bandura, 1989), in explaining entrepreneurs' motivation and decision making. Compared to those with a lower perception of self-efficacy, individuals with stronger self-efficacy are more likely to behave entrepreneurially (Chen, Greene, & Crick, 1998). Entrepreneurs' schemas and mental models also allow them to quickly and efficiently categorize and respond to events, but they also create blind spots in the decisions entrepreneurs make. This might be manifested in a flawed competitive analysis or poor alignment of strategic goals and resources as born globals proceed to build their international operations.

Our discussion suggests that the cognitive perspective can contribute to future IE research by examining the interrelationship between environment, experience, cognition and entrepreneurs' choice of different international strategies born global firms undertake. For instance, experiences gained in the host country could reduce managers' perceptions of risk and uncertainty, which influences the firm's selection of its foreign mode of entry (Chang & Rosenzweig, 2001). This can influence the sequence of a firms cross-borders' strategic moves.

Another potential contribution of the cognitive approach to IE is drawing attention to the role of national and international institutional environments in the entrepreneurial decision making process. This is important because of the growing recognition of the effect of cultural institutions, systems of innovation and national culture in shaping a firm's cross-border strategic moves. Indeed, a born global's strategy is related to its nationality, with all its riches and shortcomings (McKendrick, 2001). The entrepreneurs' views of the changing domestic and international competitive terrain and rules of rivalry are also likely to influence their future strategic choices, shaping the pace and direction of IE moves.

A third potential contribution of the cognitive approach to IE is to provide an explanation of the major differences in entrepreneurial activities across different national cultures, an issue of immense interest research today (Hayton, George, & Zahra, 2003). The

preliminary results of the Global Entrepreneurship Monitor research program shows that wide variations exist across countries in their rates and types of entrepreneurial activities (Reynolds, Bygrave, Autio, Cox, & Hay, 2003). Previous studies (Thomas & Mueller, 2000) also show that entrepreneurial traits (e.g. risk-raking) are related to cultural elements. Similarly, Begley and Tan (2001) conclude that the social status of entrepreneurs is positively related to people's propensity to pursue entrepreneurial activities. If these observations are correct, then we need to document how entrepreneurs' cognitions transcend national boundaries in recognition and enactment of opportunities. Societies differ in the value they attach to entrepreneurship as a profession as well as the protection they give discoveries—be it in the form of products, processes, organizations or business models. Therefore, we need also to investigate the effect of these variables on entrepreneurs' enactment of these opportunities.

Our advocacy of the cognitive approach should not blind future IE researchers to its shortcomings. Entrepreneurial cognition is not directly observable and therefore hard to measure. Such cognition is idiosyncratic and hard to generalize, especially when it comes to entrepreneurs who share many common attributes with the general population but still believe and act quite differently from the norm. Given the intangibility and idiosyncratic qualities of entrepreneurial cognition, IE researchers may impose their interpretations on entrepreneurs' behaviors and draw false conclusions. Behaviors do not always reflect cognition, making it difficult to document the role of cognition in entrepreneurial decisions.

6. Framing IE as a cognitive process

Applying the cognitive approach to understanding opportunity recognition and exploitation within IE also demands an appreciation of managerial information processing. One of the most useful analytical tools is the tripartite model (Daft & Weick, 1984). This model suggests that people first direct their attention to certain parts of the environment and acquire/gather information, interpret it, and finally act based on their interpretations. This process, which can be conscious or automatic, relies heavily on cognitive representations of the external environment that have been previously formed through a process of sensemaking. Entrepreneurs' mental representations are usually adjusted incrementally on an ongoing basis to accommodate new information. Occasionally, the discordance between these representations and the incoming information is so large that a radical reevaluation triggers a dramatic change in behavior (Weick, 1995).

Daft and Weick's (1984) model indicates that the identification of IE opportunities and their successful pursuit arises from the interplay of multiple forces. First, the organization or entrepreneur must be in an environment that presents relevant information and the entrepreneur's environmental scanning routines must be attentive to that information. This scanning could be formal in nature but many entrepreneurs do so informally, canvassing very different sources of information about foreign markets and opportunities that exist outside their home markets. Entrepreneurs are adept at using their networks to collect such information, giving attention to the credibility of their sources and the salience of the data they receive from them.

The information entrepreneurs receive from their environment must be *discordant* with their existing cognitive models to spur conscious processing of that information (Weick, 1995). This discordance arouses entrepreneurs' interests by compelling them to make sense of the new information. For example, noting that few suppliers exist for a highly demanded product in a growing foreign market, an entrepreneur might find this puzzling especially given the opportunity to make a profit. This might lead the entrepreneur to analyze the industry, investigate the dynamics of competition in the market, and study the way the value chain is configured. However, because entrepreneurs' attention patterns and cognitive models depend on both the environment and their previous experiences, information processing is rife with mental loops and contradictions. For example, extensive international experience might not promote the identification of IE opportunities. This experience may promote a rigid focus on familiar clues, causing new information to be ignored. Also, given the entrepreneur's extensive past experiences, newer situations may not generate surprises that trigger sensemaking (Weick, 1995), overlooking emerging opportunities.

The information processing associated with the discovery or identification of an IE opportunity also generates the organizational action necessary to pursue this opportunity. Of course, the assessment of these opportunities depends on the entrepreneur's experiences and skills. Still, an entrepreneur's personality plays a key role in making these evaluations, which is subject to serious cognitive biases such as overconfidence (Palich & Bagby, 1995). Still, prior experiences and organizational characteristics also constrain the evaluation of opportunities. For example, though experienced individuals are more likely to have deeply rooted perceptions of how internationalization should proceed, they also hold strong beliefs of what can and cannot be done as they undertake this process. These beliefs shape entrepreneurs' recognition of emerging opportunities and how to best harvest them. Finally, organizational actions should produce positive results by improving firm performance or helping to identify or even create new opportunities.

Born globals pose important challenges for researchers. These firms have a different mindset from the start. How this mindset develops and how they influence the recognition and choice of opportunities are two important areas that deserve attention. Early work (Oviatt & McDougall, 1994) suggests that these firms build on founders' prior knowledge and connections in exploring and evaluating these opportunities. However, these prior experiences are likely to define and frame these mental models and give them meaning. Nascent international entrepreneurs, though sometimes unconscious about the choices they make, often rely heavily on their experiences. They envision how the competitive arena might look, define key success factors, examine the resources needed to match these success factors, and start exploring the specific opportunities that might be developed or found in foreign markets.

International opportunity recognition is an iterative process, where the entrepreneur revises her (his) concept several times. These revisions are based on the entrepreneur's intuition, formal and informal feedback from the market, and the results of trials and errors. These revisions are subject to entrepreneurial cognitive biases and hubris. But once the entrepreneur makes a decision, the stage is set to explore ways to exploit the chosen op-

portunity. It is important to note that the selection of the opportunity is often connected (indeed, intimately linked) to the choice of the mode of the exploitation. Again, entrepreneurial mental models influence the type of company's organizational form, governance system, formal structure, and competitive strategy. The firm is an extension of the entrepreneur's ego and is a means of gaining social acceptance and legitimacy in international markets. Born globals have to decisively overcome the liabilities of newness and foreignness that can undermine their quest for survival and profitability.

Measuring success is problematic because entrepreneurs have very different motives for internationalizing their operations, as noted earlier. Some want to become rich while others want to prove the viability of a new business idea that they have conceived. Other entrepreneurs want to escape hostile domestic market conditions or even improve their own life styles. In addition to the different motivations that encourage entrepreneurs to internationalize, the mechanisms through which they create value are idiosyncratic. Importantly, the opportunity is created *only* during the process of exploitation.

Variations in motivations and modes of exploitation suggest that for an international entrepreneurial act to be successful, prior information processing must be conducted fast enough so that the environment stays substantially similar and the response can quickly enact the opportunity (Weick, 1995). Previous international experiences generate a large pool of routines for born globals to draw upon in making strategic decisions about international operations. Established companies seeking to expand existing foreign operations or enter new foreign markets are also likely to benefit from the expertise of their managers. Yet, these companies may be blinded by their past experiences or inertial forces, slowing their decisions. Younger firms are more likely to make their internationalization moves quickly. However, they may end up spending time learning, pooling resources, and making important adjustments as they go. Improvisation is an important part of born globals' strategic repertoire, inducing variety into the decisions they make. Given that entrepreneurs are less prone to second guessing or counterfactual thinking (Baron, 2000), born globals might be better at coping with equivocality associated with exploiting uncertain and often fleeting opportunities in international markets.

As the above observations suggest, understanding how IE activities unfold and affect new firms requires an appreciation of each of the steps Daft and Weick (1984) discussed. They can also help future IE researchers respond to Melin's (1992) suggestions about tracking internationalization decision streams over time. Such analysis can connect entrepreneurs' decisions about international strategies with the motivation for and the context of these strategies. These analyses will undoubtedly be complicated but they will add much needed richness to our understanding of how these strategies unfold and influence company performance. Each of the steps we discussed raises serious challenges and has unique trajectories that should be understood in order to draw stronger conclusions about the nature, content and process of IE.

To recap our observations, Table 1 contrasts the born global and cognitive approaches. These differences are now well noted in the literature, as discussed earlier. The final column in Table 1 also summarizes the key but subtle differences that exist between the cognitive approach to IE and our extension of that view. We believe that future IE research would benefit from analyzing not only individual cognitive models but also individual

Table 1. Comparison of born global, entrepreneurial cognitions and the augmented cognitive views of IE

Variable	Born global approach	Entrepreneurial cognitions approach	Augmented cognitive viewpoint
Assumptions	(a) International entrepreneurship (IE) is a firm-level phenomenon	(a) IE activities reside in the cognitive traits and models of individual entrepreneurs and therefore taught	IE might reside in individual differences in sensemaking, in addition to individual cognitive models
	(b) Born globals differ fundamentally from other types of firms	(b) IE centers on the conception, recognition, enactment and exploitation of opportunities	
Antecedents	(a) Antecedents for IE activities reside in transaction cost economics as well as the resource-based, network and knowledge theories of the firm. In combination, these theories determine whether certain IE acts are feasible	Entrepreneurs' cognitive models trigger IE activities	A combination of environmental forces and individual characteristics influence sensemaking which, in turn, triggers international entrepreneurial acts
	(b) Born global firms have learning advantages that enable them to rapidly overcome knowledge constraints and quickly accumulate new knowledge		
Outcomes	Resource-constrained born global firms can compete successfully with large incumbents, acquire market share and achieve profitability	Biased entrepreneurs' cognitions may lead to inaccurate opportunity evaluation, making IE activities risky. However, entrepreneurs' mental models are a key source of newness and variety that the market values	Though IE is risky, execution facilitated by downplaying the risks associated with exploiting opportunities and balancing innovativeness and execution capability

differences in personality and attitudes among entrepreneurs. Our discussion also places individual sensemaking at the center of the potential explanatory variables to be investigated in future IE research.

7. Discussion and implications

This article proposes that we need to examine IE as a sensemaking process in which an opportunity unfolds over time and is often constructed through successful exploitation. While this is a fundamentally individual process, it is also rooted in the firm's organizational culture and external environment. Applying a cognitive perspective, therefore, can significantly augment prevalent economics-based views of IE and born globals, highlighting the content of the strategies these firms may use and their financial and non-financial

consequences. The cognitive perspective also suggests that IE activities are rooted in their contexts but in a non-linear fashion. It also calls attention to the process of sensemaking and the socio-psychological variables that influence the acquisition of IE data and their interpretations. This process is intimately linked to the content of IE strategic choices and deserves examination.

Our discussion also suggests that the process that creates entrepreneurial international acts has clear and distinct characteristics but not all internationalization activities, even in young firms, are entrepreneurial. To be entrepreneurial, we believe an internationalization act should be preceded by sensemaking that enables key organizational actors to view their external environment in a new light. In turn, this requires an environment with no crystallized, rigid meanings and organizational actors without entrenched cognitive models. Thus, in some environments, the careful execution of previously learned internationalization routines might not be an IE act. An IE act is not only the product of an organizational culture but it also changes the industry significantly. Radically innovating while venturing into a new foreign market or adopting a radically new business model that alters the dynamics of competition or redefining the value chain differently from existing competitors are examples of entrepreneurial acts that have the potential to change their environments (Zahra, 1991).

The cognitive underpinning of the IE process opens several directions for future research on key contingencies for opportunity recognition, exploitation and value creation in foreign markets. Comparing born globals with different sizes and experiences can improve our understanding of the process of value creation through IE. Qualitative and quantitative studies can also help to capture the various variables that stimulate IE activities and determine future value creation. Still, given that we cannot exhaustively characterize the content of cognitive models describing entrepreneurial opportunities with a finite set of dimensions, middle-range theories can guide future research. Future researchers would benefit also from investigating the differences that might exist between born globals and established companies in how they conceive of and then exploit opportunities in foreign markets.

Research opportunities abound using the cognitive approach to IE. One of the most fertile areas for future analysis is to understand how entrepreneurs construct their mental models of the global competitive arena and how they go about identifying their niche within this arena. Addressing these issues requires the use of ethnographic and simulation methods. Carefully researched case studies could also clarify these issues. Insights drawn from psychology on the entrepreneurial personality and mindset could clarify the development and enactment of entrepreneurial mental models.

Research would benefit also from examining the link between entrepreneurs' mental models and the pace, speed and mode of internationalization. Are certain mental models conducive to speedy internationalization? If so, how do entrepreneurs create the organizational systems that make this feasible? This research can improve our understanding of the role entrepreneurs' motivation and cognition play in mapping the international value chain and how their firms go about constructing their operations to achieve distinctive competence. Do these processes vary based on entrepreneurial mental models? It is also important to determine how these mental models change as a result of internationaliza-

tion. Ethnographic and archival studies could be useful in exploring these issues.

8. Conclusion

IE research has attracted worldwide attention and recognition. Born globals and established companies alike have to work hard at discovering, framing, enacting, selecting and exploiting opportunities in foreign markets. While these two sets of companies appear to benefit from different factors in building their market positions, they face formidable challenges in identifying the opportunities they pursue. In this article, we have noted that we know little about what goes through entrepreneurs' minds as they explore their firm's competitive global landscape. We know little also about these entrepreneurs' motivations to internationalize their firms' operations and how these motivations influence the selection of the mode of entry or other mechanisms by which international opportunities are exploited. We have suggested that a cognitive perspective could induce greater depth and variety into future IE research, further improving its scope, relevance and rigor. The use of the cognitive approach can enrich our understanding of the mental models that guide and shape internationalization decisions.

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