Experts in Entrepreneurship: Opportunities and Context Evaluation from the Perspective of Entrepreneurs and Non-Entrepreneurs

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Abstract

Purpose—This paper analyzes how different experts in entrepreneurship perceive their surrounding environment and business opportunities. The authors suggest that people act the way they do not only because of different interpretations of the environment but also because of the relative importance they give to the context and themselves in their mental scripts.

Design/methodology/approach—A Mann-Whitney U non-parametric test and PCA were conducted to examine the National Expert Survey (NES) from the Global Entrepreneurship Monitor (GEM) database of Chilean experts.

Findings—When experts in entrepreneurship are compared, entrepreneurs and non-entrepreneurs differ in their use of certain cognitive resources about past or current events, but they map out future situations similarly, suggesting that their mental simulations may converge into similar patterns.

Originality/value—This study provides useful insights regarding the impact that mental representation has on experts' perception, by discussing how experts who are entrepreneurs perceive the entrepreneurial ecosystem and current opportunities differently than experts who are not entrepreneurs. The specific context plays a key role in the way entrepreneurs and non-entrepreneurs analyze their surrounding environment but not necessarily opportunities.

Keywords: entrepreneurial expertise, information processing, opportunity recognition, entrepreneurial framework conditions, mental scripts

Introduction

People likely have different opinions regarding what conditions represent "a favorable environment" for starting a new business since the worldview of an actor is different from the worldview of an observer (Brännback and Carsrud, 2008). Entrepreneurial behavior refers to individuals' reactions to mental interpretations, where subjectivity plays a key role as the origin of business opportunities emerges from different perceptions of environmental signals (Baker and Nelson, 2005; Casson, 1982; Edelman and Yli-Renko, 2010; Gaglio, 2004; Kirzner, 1978; Renko *et al.*, 2012).

Understanding entrepreneurs' perceptions and interpretations is crucial in the study of entrepreneurial thinking, since the subjective evaluations individuals make are manifestations of their knowledge structures and information processing (Frese and Gielnik, 2014). As such, these evaluations shed some light in explaining how entrepreneurs think (Baron, 1998; Krueger, 2007; Mitchell *et al.*, 2007) within the context of their local entrepreneurial environment. While some studies have suggested that entrepreneurs think differently compared to non-entrepreneurs (e.g., Baron, 1998; Mitchell *et al.,* 2002), other studies have argued that there are no innate fundamental differences between these individuals, and that context or situation might instead lead to these differences (e.g., Murnieks *et al.,* 2011; Mullins & Forlani, 2005). Whereas the existing entrepreneurial literature has focused on understanding why entrepreneurs perceive the context and behave differently than others, this study explores a subgroup: experts in entrepreneurship.

Consistent with Mitchell *et al.* (2000), experts are defined as individuals who possess knowledge structures about a particular domain that allow them to significantly outperform and process information more accurately than non-experts. It is important to note that experience itself does not necessarily provide expertise; only when experience is nurtured and leads to the successful accomplishment of corresponding goals is the status of expert reached (Lord and Maher, 1990). As Gaglio and Katz (2001) suggest, "to achieve expert status, beyond the level of preparation, [it] is necessary to develop veridical or realistic mental representations of causal patterns and interacting factors" (p. 102), which in turn enable experts to quickly solve problems. For the purpose of this study, the authors distinguish between two types of experts: expert entrepreneurs and expert non-entrepreneurs. While both have experience and education/training, expert entrepreneurs are individuals who have started at least one business and have succeeded in doing so. Expert non-entrepreneurs are individuals that have not currently started a business but are deeply involved in the entrepreneurial ecosystem, understanding an entrepreneurial ecosystem as "a set of interdependent actors and factors coordinated in such a way that they enable productive entrepreneurship within a particular territory" (Stam and Spigel, 2018).

This study builds on the extant literature on expert information-processing theory (Mitchell *et al.*, 2000, Mitchell *et al.*, 2002; Neisser, 1967) by exploring the nature and development of experts' personal perceptions of context and opportunities, emphasizing how and why differences among experts arise (Bryant, 2007). Specifically, the authors argue that entrepreneurs' and non-entrepreneurs' mental images of opportunities depend on the specific role these individuals play in society. To illustrate these theoretical arguments, the authors use a Global Entrepreneurship Monitor (GEM) database, the National Expert

Survey (NES), which includes a sample of 344 key informants in Chilean central regions between 2010 and 2012. In this context, the study focuses on the different perception of Entrepreneurial Framework Conditions (EFCs), which has commonly used as a proxy for entrepreneurial ecosystem (e.g., Hechavarría and Ingram, 2019; Muñoz et al., 2020) and opportunity existence that are evaluated in the GEM project. EFCs are a set of key factors that directly affect the local development of entrepreneurship (Reynold *et al.*, 2005), using non-parametric statistics. The results suggest that even when experts in entrepreneurship are compared, entrepreneurs and non-entrepreneurs differ in how they process information about the environment and current business opportunities, which is consistent with prior studies suggesting that individuals' mental frameworks are nurtured by cognitions, experiences, and motivations. However, these same results do not occur when new generic opportunities are evaluated. The main thesis in this study relies on the notion that expert knowledge in entrepreneurship, acquired by first-person experience (experimentally) or third-person experience (vicariously), can overcome differences caused by mental interpretations developed by being entrepreneurs and/or non-entrepreneurs.

Starting from the argument that diverse behaviors stem from individuals' different readings of the world, the first goal of this study is related to the ongoing discussion of expert information-processing theory. Namely, this study provides a theoretical explanation for the influence that a number of country-level antecedents (i.e., EFCs) have on entrepreneurs' mental images of their perceptions of opportunity existence. While cognitive structures comprise deep beliefs, which are strong assumptions used to filter and process external information to give it meaning, the authors argue that role scripts define how individuals receive external information and are the origin of diverse perspectives. As such, the way

individuals make sense of the world is grounded in their cognitive structures or mental frameworks.

The second goal is related to how information is mentally organized and experts' capacity to enhance their cognitive resources. Concretely, authors argue that people not only perceive things differently but also interpret the resulting information in a particular manner, and that experts are prone to select information appropriately and efficiently This enables experts to center their attention on the more relevant aspects, and based on meaning-based hierarchy, their information processing is more accurate. In particular, the authors argue that the perception of every expert to evaluate new opportunities is similar regardless of whether they are entrepreneurs or not. This idea is based on the notion of deliberate practice and how both experiential and vicarious learning influence information processing.

The third goal is related to the origin and emergence of different perspectives. In this regard, the evaluation of current opportunities within a set of framework conditions influences the way information is processed based on role scripts. Thus, while non-entrepreneurs tend to visualize the environment, particularly the opportunities available, from a third-person perspective, entrepreneurs tend to interpret it through a first-person lens. The authors explain these differences based on the fact that entrepreneurship requires general skills, not specialized skills (Baron and Henry, 2010; p. 57). Consequently, individuals' personal readings of the environment and current opportunities are inherently affected by their cognitions (e.g., Groves *et al.*, 2011), motivations (e.g., Estrin *et al.*, 2013), and previous knowledge (e.g., Shane, 2000), so the manner by which individuals

learn and acquire knowledge plays an important role in explaining differences among experts (Corbett, 2007).

Since the relationship between opportunities and the environment is far from being totally understood, this study's results suggest this relationship is not necessarily direct or linear; instead, there is a complex inter-relationship between the environment, business opportunities, and individuals' cognitions. Hence, attention has been drawn to the way entrepreneurs tend to perceive aspects within their range of action—namely, they tend to over-value their control over results (i.e., image of "good" opportunities available) and reduce the relative importance of the exterior (i.e., image of the environment). We nurtured this analysis with an empirical comparison of different experts in entrepreneurship regarding several external factors that shape entrepreneurial activity. This study provides empirical evidence of how entrepreneurs perceive the entrepreneurial ecosystem, which is important because the starting point of any entrepreneurial intention is the perception of having the right conditions for doing business (Smith *et al.*, 2009).

Conceptual Framework

Mental Representations

According to Grégoire *et al.* (2011), individuals' behavior is influenced by their information perspective (e.g., environmental factors) and mental abilities (i.e., perceptual filters). Sarasvathy *et al.* (1998) highlights that mental representations are crucial because not only do they affect how things are perceived but also how they are managed (p. 216).

Therefore, perceived signals of the environment are critical since what individuals perceive is often as important as objective reality (Krueger and Brazeal, 1994; Arenius and Minitti, 2005). Since people do not have the same traits and relationships, their mental structures are not necessarily activated in the same ways when making sense of a given situation (e.g., a potential business opportunity), so the application of these mental scripts can vary from one individual to another. Mental scripts are knowledge structures or models that individuals impose on information to give it form and meaning, and to enable subsequent interpretation and action (Walsh, 1995). In this sense, information processing shapes individuals' representations of reality (Vaghely and Julien, 2010; Jansen *et al.*, 2011).

According to Wood *et al.* (2014) and Smith *et al.* (2009), information processing comprises the construction of simplified images of one's current situation and, based on these images, predictions for the future. Individuals create their beliefs and judgments based on this mental template of the environment (Hindle, 2004; Mitchell *et al.*, 2000), which evolves as individuals internalize new experiences and knowledge (Endsley, 2000; Lim and Klein, 2006; Smith *et al.*, 2009). Therefore, the way the market environment is represented in an individual's mind affects the images he or she has of opportunities and entrepreneurial behavior (Gaglio and Katz, 2001; Mitchell and Shepherd, 2010; McCann and Vroom, 2015).

Individuals make assessments, judgments, and decisions based on mental structures, or scripts. These scripts refer to how individuals simplify their mental models to link previous information to form guidelines about a particular concept (Grégoire *et al.*, 2011; Krueger, 2007; Mitchell *et al.*, 2002). These scripts are cognitive processes related to how

individuals perceive their internal motives and competences and the way information from the external environment is organized (Chalmers and Shaw, 2015). In relation to this notion, extending the work of Mitchell *et al.* (2000), Corbett and Hmieleski (2007) remark the relevance of role scripts, and suggest that one distinction between entrepreneurs and non-entrepreneurs lies in these scripts. The authors define role scripts as a "cognitive structure or mental framework relating to how one's knowledge is organized about the set of behaviors expected of a person in a certain job, function or role" (pp.103–104).

Experts' Processing and Problem Solving

According to expert information-processing theory (Neisser, 1967), individuals are information processors, and experts generally have better recall of relevant information that is less biased (Gaglio and Katz, 2001; McKeihen *et al.*, 1981). Experts are characterized by how they structure information and solve problems (Glaser *et al.*, 1988; Bennett, 1998). Specifically, experts tend to use a meaning-based hierarchy such that they categorize and solve problems using the same principles (Day and Lord, 1992). Simon (1987) suggests that by focusing on this meaning-based hierarchy, experts are able to diagnose problems and find solutions rapidly and intuitively (Bennett, 1998), so their knowledge is organized around implicit principles and abstractions (Glaser *et al.*, 1988; Bazzy *et al.*, 2018). Hence, research has suggested that experts are different cognitively, specifically in terms of information processing (Mitchell *et al.*, 2000; Smith *et al.*, 2009).

According to expert information-processing theory, an expert's script comprises highly developed, sequentially ordered knowledge that is germane to a specific field (Mitchell *et*

al., 2000, 2002). This knowledge is often acquired in a dynamic process, in which knowledge structures are organized in long-term memory through the iterative interrogation, instantiation, and falsification of cognitions grounded in real-world experience (Glaser, 1984). Research on expertise has suggested that as individuals gain experience in a given domain, they learn to develop increasingly refined, well-developed, and useful mental frameworks for performing many tasks (e.g., Davis *et al.*, 2003). Furthermore, research on expertise suggests that as individuals gain experience in a given domain, they learn to focus attention primarily on key dimensions (Bennett, 1998). In addition, experts may develop closer linkages between working memory and long-term memory and, as a result, may be better able to draw on previously acquired information when making judgments (e.g., Ericsson, 2006).

For example, Gaglio and Katz (2001) note that experts have more complex scripts, enabling them to see developing patterns, quickly detect anomalies, and rapidly adapt to different circumstances. As a result, experts' mindsets become intensively self-reflective and self-regulatory (Haynie, 2012). However, Kirzner (1979) distinguishes between entrepreneurial knowledge and knowledge experts, suggesting that the latter—namely, those who possess specialized knowledge—do not fully recognize the value of their knowledge. Based on this argument, it seems plausible that while all experts in entrepreneurship have enhanced cognitive resources (Baron and Herny, 2010), the mental interpretations of those with experiential learning (i.e., entrepreneurs) likely differ from the mental interpretations of those who learn vicariously (i.e., non-entrepreneurs). This argument represents a crucial difference in the information processing of experts in entrepreneurship (Alvarez and Busenitz, 2001). Therefore, this literature review leads to the following hypothesis:

H1. *Perceptions of the EFCs among experts in entrepreneurship differ as a function of the experts' specific role as either an entrepreneur or a non-entrepreneur.*

Expertise in Entrepreneurship: Opportunity Evaluation

Valliere (2013) argues that entrepreneurial alertness is the application of entrepreneurial scripts that precede value creation in response to environmental changes (whether objective or subjective) (Adomako *et al.*, 2018; Coelho, 2010). Numerous studies have compared entrepreneurs and managers (e.g., Palich and Bagby, 1995; Stewart and Roth, 2001) and have observed differences, suggesting that the way individuals organize their knowledge is different. While most individuals tend to connect information by causality (i.e., systematic procession logic), studies have shown that entrepreneurs tend to use a more heuristic-based logic (Busenitz and Barney, 1997; Mitchell *et al.*, 2007). This logic appears to give entrepreneurs a competitive advantage as it allows them to quickly learn about new changes and the implications of those changes for the development of specific discoveries, thereby enabling them to reach conclusions rapidly (e.g., Alvarez and Busenitz, 2001; Baron, 1998; Simon and Houghton, 2002). In this sense, entrepreneurs process information in an interpretative way based on their personal reading of the context, which is nurtured by their experience, cognition, and motivation (Smith *et al.*, 2009; Vaghely and Julien, 2010).

Previous research has shown that entrepreneurs' expert scripts comprise arrangements, willingness, and ability scripts necessary to start a new venture (Mitchell *et al.*, 2000, 2002). These entrepreneurs' expert scripts are used to make assessments, judgments, and

decisions involving opportunity evaluation, venture creation, and growth (Mitchell *et al.*, 2000). Hence, even though entrepreneurs do not always think entrepreneurially (Mathias and Williams, 2017), evaluating current opportunities in a context acquires a fundamental importance since it impacts the connection between one's role scripts, thereby leading entrepreneurs to assume the entrepreneurial role (Murnieks and Mosakowsky, 2007).

Although expert scripts dramatically improve an individual's information-processing capabilities, according to Mitchell and Shepherd (2010), expert entrepreneurs tend to believe that they can successfully pursue an opportunity despite their awareness of the environment. Consequently, entrepreneurs' formation of certain mental images of the environment and of opportunities may be based on different structures (Sarasvathy, 2001; Hornsby *et al.*, 2009). For example, some individuals' images of opportunities depend on profitability and feasibility, while others tend to focus on newness and uniqueness (Baron and Ensley, 2006; Mitchell and Shepherd, 2010). Evaluations of entrepreneurial opportunities involve judgments about the investment of time, effort, money, and other resources based on personal subjective perceptions. Therefore, individuals with dissimilar mind structures with respect to entrepreneurial mindset–related constructs (e.g., role scripts) likely differ in the way they process information since the work and the challenges they face are substantially different (Corbett and Hmieleski, 2007; Markman *et al.*, 2002; Wincent and Örtqvist, 2009). This reasoning leads to the next hypothesis:

H2a. *Recognition of the current opportunities available in a determined context among experts in entrepreneurship differ as a function of the experts' specific role as either an entrepreneur or a non-entrepreneur.*

Although role scripts may contextualize the business environment and the evaluation of current opportunities, there is evidence suggesting that the mental framework of expert entrepreneurs and expert non-entrepreneurs are not intrinsically different in terms of new opportunities. That is, the differences in these experts' mental frameworks do not stem from their occupations because within a single occupation, there are several roles that can influence thinking and decision making (Mathias and Williams, 2017).

Therefore, the main source of knowledge that entrepreneurs rely on is their direct experiential learning process. Nevertheless, Baron and Henry (2010) suggest that learning certain tasks related to entrepreneurship from other domains can enhance cognitive resources, which can in turn balance tacit knowledge. Baron (2009) analyzes the role of deliberate practice in developing entrepreneurial expertise and suggests that one way individuals can engage in deliberate practice is vicariously, which is defined as learning by observing the actions and outcomes of others (Kolb and Kolb, 2005; Holcomb *et al.*, 2009). Such learning can even be more efficient than direct trial-by-trial learning or lived experience (Bandura, 1986). Therefore, individuals can build expertise through exposure to a large number of pertinent, realistic, and highly relevant examples (Corbett, 2007).

Further evidence suggests that in the context of new business opportunities, if experienced entrepreneurs do not confront patterns they have dealt with before, their prior entrepreneurial experience does not necessarily provide a different mechanism to frame new opportunities (D'Souza and Kemelgor, 2009; Long and Dong, 2017). It is important to mention that this does not necessarily mean that these entrepreneurs fail to generalize their

experiential knowledge for new ventures but rather that their frame or logic for decision making is not different (Toft-Kehler *et al.*, 2014).

According to Mitchell and Chesteen (1995), individuals can enhance their entrepreneurial expertise through interactions with serial entrepreneurs. Because of their activities as academics, financers, policymakers, venture capitalists, etc., expert non-entrepreneurs are intrinsically exposed to numerous entrepreneurs in their daily activities, so they often become conscious of the key ways to frame situations as opportunities. In this sense, through vicarious learning, expert non-entrepreneurs' mental frameworks for new business opportunities can become similar to those of expert entrepreneurs since both are exposed to a starting-from-zero scenario (Mathias and Williams, 2017). Through deliberate practice, expert entrepreneurs and expert non-entrepreneurs enhance several cognitive resources, including metacognitive resources (Baron and Henry, 2010), which likely enable them to effectively conduct the mental simulations required in the opportunity-identification process (Gaglio, 2004). Therefore,

H2b. *Recognition of the new opportunities available in a determined context among expert entrepreneurs are similar despite the experts' specific role as either an entrepreneur or a non-entrepreneur.*

Data and Methodology

To examine the hypotheses developed in the proceeding section, the authors used the NES from the GEM survey. The NES is a lengthy questionnaire that provides the observer with a

subjective diagnostic based upon the state of the entrepreneurial framework conditions, which are political, economic, and social aspects related to entrepreneurship (Levie and Autio, 2008; Reynolds *et al.*, 2005), and —according to Hechavarría and Ingram (2019) —, the EFCs capture the entrepreneurial ecosystems of countries. For subject selection (experts), the procedure requires a non-random sample. The GEM methodology requires that at least 36 experts in entrepreneurship from each participant country answer the survey (Reynold *et al.*, 2005). The experts are selected based on their reputation and experience in the local entrepreneurial ecosystem; therefore, they come from different areas related to entrepreneurship: venture capitalists, bankers, policymakers, business owners, etc. The GEM methodology recommends that at least 20% of the experts be entrepreneurs or business owners and that at least 50% be professionals (Reynolds *et al.*, 2005).

The NES questionnaire is conducted in every country participating in the GEM project, and in the particular case of Chile, the questionnaire is applied to experts evaluating the EFCs at a regional level. This makes the database unique because of the number of experts who participate per year. The sample for this study consists of 344 cases collected in the years 2010, 2011, and 2012, corresponding to the central regions of the country not including the peripheral regions of Chile, thus the authors avoid differences in the context analyzed by the experts[1] . Until 2012 a special section about opportunity awareness was included. Although after 2012 this set of questions was discontinued for all countries participating in GEM, to analyze hypotheses 2a and 2b, these questions were necessary.

[1] Following Amoros et al. (2013) the central regions are defined as the data collected for the metropolitan areas of Santiago and Valparaiso. The rest of the data, either collected on the north or south are defined as peripheral.

The group of experts in the central regions is composed of a total of 344 experts, of those, 234 are entrepreneurs and 110 are not. Table 1 shows the sample composition and average value characterization.

--Table 1 about here--

The Chilean environment is an interesting context to study since its economy has the highest level of development in Latin America and it has the highest rates of opportunity-driven new venture creation in the region (Villegas-Mateos, 2020; Poblete and Amorós, 2010). During the period of analysis, the Chilean entrepreneurial ecosystem was flourishing, and "some of the policies introduced by the Chilean government served to enhance the cultural legitimacy of entrepreneurship" (Mandakovic et al., 2015, p.121). Therefore, the specific context experts evaluated underwent no major changes in the period analyzed, and a stable pro-entrepreneurship policy agenda and the general perception of the population in the period analyzed was one of high legitimacy of entrepreneurial activity.

It is important to note that the main objective of this study is not to evaluate the Chilean entrepreneurial framework conditions; instead, what matters is how experts in entrepreneurship perceive the specific context. That is, this study does not focus on the context per se, but on individuals' perceptions of the context.

This study concentrates on mental interpretations, knowledge structures, and information processing. This database helps evaluate these dimensions, enabling the authors to compare

the EFCs among expert entrepreneurs and expert non-entrepreneurs by measuring their subjective views. For each statement related to the EFC dimensions, the experts are asked to indicate their level of agreement on a five-point Likert scale, where 1 means "strongly disagree" and 5 means "strongly agree." A detailed description of the statements for each EFC dimension is provided in Appendix A.

The NES also covers items not directly linked to EFC, in particular the topic of experts' perceived opportunities will be used to evaluate hypotheses 2 a and 2 b. Methodologically, this section is a complement to the EFCs (other topics are also assessed, such as conditions for female entrepreneurship, Intellectual Property Rights and growth-oriented entrepreneurship). The authors used this particular topic to evaluate experts' perceptions of the existence of opportunities and how these perceptions differ between entrepreneurs and non-entrepreneurs. Similar to Mitchell and Shepherd (2010), who focused on the distinction between first-person opportunities and third-person opportunities, in this case, it is also possible to identify differences in perceptions of the EFCs among actors and observers. The authors apply a variable reduction procedure (PCA) to analyses to generate 12 EFCs. These framework conditions will be essential to test Hypotheses 1a and 1b. Table 2 presents Cronbach´s alphas of the factors where almost all constructs exceed the recommended threshold level of 0.7, suggesting satisfactory reliability for the EFCs (Nunnally, 1978). Table 3 shows the mean values per year of the EFCs used in the study, no significant differences are shown, sustaining the idea of the stability of the Chilean context in the study period.

--Table 2 about here--

--Table 3 about here--

However, for the purpose of this study, specifically Hypotheses 2a and 2b, it is necessary to analyze in detail each one of the five items included in the perceived opportunity topic. Hence, this construct is measured on a five-point Likert scale, for which 1 is "completely disagree" and 5 "completely agree" and the items will not be reduced. Table 4 shows the mean values of every item each year.

--Table 4 about here--

In order to find the best way to test the differences between groups (entrepreneurs and non-entrepreneurs) the authors compare the distributions of the evaluations made by the experts. A Kolmogorov-Smirnov test of normality was conducted, this normality test is recommended for samples with more than 50 observations, which is the case of the database used. The technique reveals that this study's variables did not have a normal distribution; therefore, the recommended methodology for comparing the differences among groups is to use a Mann-Whitney U non-parametric test. Comparing the evaluations made by expert entrepreneurs and non-entrepreneurs, in the case of EFC and opportunity existence, will allow us to test the proposed hypotheses. There is consensus in the literature that this test is considerably more efficient and robust than a t-test when sample distributions are not normal (Conover, 1998; Amorós et al., 2013; Villegas-Mateos and Amorós, 2019).

Results

Table 5 presents the results of the Mann-Whitney U test applied to the twelve EFC conditions. Significant differences were found between the two groups for every EFC—results that are consistent with H1—suggesting that expert entrepreneurs and expert non-entrepreneurs perceive the entrepreneurial context differently. The results presented here are in line with some findings from the cognitive entrepreneurship literature proposing that entrepreneurs' thinking is different from that of non-entrepreneurs (Baron, 1998; Grégoire *et al.*, 2011; Krueger, 2003; Mitchell *et al.*, 2002). This stream is based on evidence suggesting that entrepreneurs have distinct differences compared to non-entrepreneurs in several aspects, including risk propensity (Steward and Roth, 2001, 2004; Sarasvathy *et al.*, 1998), motivation (Steward and Roth, 2007), personality (Begley and Boyd, 1987), and abilities (Alvarez and Busenitz, 2001; Baron, 1998).

-- Table 5 about here –

Regarding perceptions of opportunities, Table 6 presents the results for entrepreneurs and non-entrepreneurs. The findings suggest that in the case of the first two questions, experts do not differ, however, they do differ significantly in the following three dimensions. The first two questions are about the evaluation of the opportunities offered by the context to "newcomers", while the rest are associated with evaluating the past five years or potential growth of existing firms. Individuals think in terms of a common comparative structure (Gentner, 1983; Markman and Gentner, 1993a; Medin *et al.*, 1995), but based on Sarasvathy (2001), the whole rationale behind opportunity recognition is different between entrepreneurs and managers (Ellis and Heneman, 1990), supporting H2a (last three

dimensions show significant differences between groups). These results may also support other studies suggesting that entrepreneurs use logic and insight to convert problems into opportunities, transforming "as if" situations into "even if" situations (Baron, 1998, 2004).

As mentioned previously, Table 6 also shows that the first set of questions regarding current opportunity perceptions have no significant differences between experts entrepreneurs and non-entrepreneurs, this finding is consistent with H2b. This can be explained by the vicarious learning of non-entrepreneur experts, which is based from the observation of the behavior of entrepreneurs. Non-entrepreneurs evaluate the current opportunities from a same starting point as expert entrepreneurs (Mathias and Williams, 2017).

-- Table 6 about here –

Discussion

This study is not about the Chilean ecosystem or whether there are good business opportunities available in the Chilean environment, since we are not explaining the ecosystem or the opportunity identification based on their evaluation. In other words, we are not arguing for any causal relationship. On the contrary, we are comparing two methods to reach expertise in entrepreneurship: those who have acquired knowledge through immersion in the entrepreneurial activity (first-person experience) and those who reach expert status through vicarious learning (third-person experience) (McMullen and

Shepherd, 2006). By doing so, we are presenting evidence that the origin of knowledge may create some differences in how experts' mental scripts are constructed (Shane 2000).

The fundamental question regarding entrepreneurial cognitions is how market environments are represented and interpreted in the minds of entrepreneurs (Shaver and Scott 1991; Gaglio and Winter 2017). In this study, we set out to discover whether experts in entrepreneurship who are not entrepreneurs differ cognitively from "traditional" experts (i.e., serial entrepreneurs). Prior studies support the idea that there are different methods to reach expertise and developed enhanced cognitive resources (Baron and Henry, 2010). Based on this line of research, one useful result from this study is the evidence indicating that entrepreneurs and non-entrepreneurs also differ cognitively even among experts. Therefore, the findings of the current research offer extensions to theory regarding entrepreneurial expertise literature.

Consistent with the literature on expertise, years of experience is a poor predictor of superior performance. Rather, the complex representations that are specific to the entrepreneurship domain and are acquired through deliberate practice seem to be the most important for developing the superior ability to anticipate and make successful predictions (Baron and Henry, 2010). Extending Pech and Cameron's (2006) work, the current study suggests that the information-processing frameworks of these two types of experts in entrepreneurship to holistically map out entrepreneurial opportunities, and its correspondent context, are constructed differently. We attribute these differences to the acquisition of information through comprehension, which occurs when individuals think in terms of

abstract concepts and reinterpretations of information (Glaser et al., 1988; Bazzy et al., 2018), and how this is related to opportunity identification (Pech and Cameron, 2006; Baron, 2009) through mental simulations (Gaglio, 2004). According to Corbett (2007) and Holcomb et al. (2009), the mode of learning influences how the information is interpreted, and this concomitance may tend to be magnified in individuals with high levels of general and specific human capital (Ericsson, 2006). Hence, and considering that both types of experts possess well-developed mental scripts in the field of entrepreneurship, it is not necessarily surprising to find differences among these types of experts (Lord and Maher, 1990; Mitchell, 2000; Baron, 2009).

A plausible interpretation of these results can be built on existing evidence suggesting that entrepreneurs tend to over-estimate their control over results, thereby reducing the relative importance of the environment (Sarasvathy, 2001; Dew et al., 2009; Murnieks et al. 2011). If so, non-entrepreneurs' lack of immersion (or first-person experience) in the entrepreneurial learning process could lead them to value things differently than entrepreneurs (Kirzner, 1979; Holcomb et al., 2009). Since non-entrepreneurs have not faced entrepreneurial challenges and work directly, what they learn from these experiences and how they process information from them may explain the differences. As several authors have observed (e.g., Sarasvathy, 2001), experienced entrepreneurs prefer to use effectual processes instead of causal processes (Dew et al., 2009; Murnieks et al., 2011). Thus, entrepreneurs may not need to perceive a more adequate environment to recognize opportunities. That is, their perceptions of the environment do not necessarily have a direct impact on the way they act. If so, it is likely that the underlying construct behind

entrepreneurial opportunities suggested by Davidsson (2015) can provide useful insights into the relationship between external enablers and new venture ideas for individuals' opportunity confidence.

Another possible explanation as to why expert entrepreneurs and expert non-entrepreneurs differ on the current evaluation of business opportunities and its contextualization lies more in the uses and how they weight information, rather than on the content (Gaglio & Katz 2001). In this scenario, a third-person entrepreneurial learning process does provide more enhancement in the relevant cognitive (and affective) processes for opportunity-recognition than the first-person entrepreneurial experience. It is important to note that we do not have specific information on the content of each expert's script about their industries, societies, what is going on, and so forth. Hence, we cannot appropriately posit whether a group may have and use certain kinds of cognitive operations more accurately than others. Currently, while studies suggest that specific knowledge influences the decision to pursue opportunities (Shaver and Scott, 1991; Ucbasaran et al, 2008), it is the way in which this information is organized in the mental model that matters most (Valliere, 2013; Dimov, 2007). Therefore, further research could compare the mental script of these two types of experts in entrepreneurship – relying on the notion of role script (Corbett and Hmieleski, 2007) – in terms of content, information, and uses.

Implications

The relevance of this finding originates in the notion of interchangeable learning approximation. This brings together two lines of research: experts' information processing and vicarious learning in entrepreneurship. The diversity in perceptions is relevant for the evaluation of public policies regarding entrepreneurship, as different experts' contributions based on their own experiences enrich the debate and perspectives. Concretely, it broadens the space of analysis and therefore makes policy evaluation less biased. Results suggest that there is value in adding a distinction between expert entrepreneurs and expert non-entrepreneurs. Intrinsically, our results suggest that the analytical mental model of serial entrepreneurs —which may be underscored through their expert evaluation—differs drastically from the perception of expert non-entrepreneurs. Hence, future studies can take advantage by including these two types of experts since each perspective provides interesting and different insights.

This study calls for a conversation on the definition of "expert" in the context of entrepreneurship. The main difference between expert entrepreneurs and expert non-entrepreneurs is that the former have acquired their expertise by developing an entrepreneurial venture. Thus, does being an entrepreneur make a person an expert in entrepreneurship? This is a reasonable question to ask and highlights the difference between expertise and experience (Lord and Maher, 1990). While expert non-entrepreneurs can visualize the entrepreneurial environment from a third-person perspective, expert entrepreneurs interpret this environment from a first-person perspective. Thus, experts' evaluation criteria change as a function of how they select relevant information. For example, because experts use meaning-based hierarchy priorities, differences in the

perspective from which they evaluate the performance of a determined ecosystem might arise. This has an important impact in the context of emerging economies that, because of their stage of development, are constructing entrepreneurial ecosystems, adapting international experiences, but also building from their knowledge (Amorós et.al, 2019).

These results should be taken into account when considering the acquisition of entrepreneurial alertness only through vicarious learning. Entrepreneurial alertness is, by definition, an expert entrepreneurial script (Gaglio and Winter, 2017; Valliere, 2013), and therefore it is worthy to consider whether non-entrepreneurs can develop alertness appropriately. So far, there is some evidence that may suggest they do. Tang et al (2008) and Gaglio and Katz (2001) argue that there is no guarantee that highly alert individuals who identify market opportunities will then exploit these opportunities by forming new ventures, for several reasons including a motivation to maintain the status quo. In other words, individuals can rationally decide not to exploit an identified opportunity, but still be able to detect informational cues, such as an economic imbalance, from the environment which may turn to an opportunity. However, for these kinds of situations, McMullen and Shepherd (2006) state that alertness is not entrepreneurial unless it involves movement toward action. Despite all of the above, examining how these groups of experts scan the environment to recognize opportunities may help us to better understand the importance of experience in opportunity recognition. Based on evidence suggesting that entrepreneurial alertness appears to happen at an unconscious level (Gaglio and Winter 2017; Blair 2010), brain imaging studies may be useful in detecting these schemas.

Conclusion

The aim of this study is not to discuss what "reality" is but to explore the mental representations of different types of experts in entrepreneurship by comparing entrepreneurs and non-entrepreneurs. Through a parsimonious empirical exercise, we tried to explore a manifestation of mental images that experts in entrepreneurship have of the EFCs (context conditions) and opportunity recognition (McMullen and Shepherd, 2006). This study has shown that the evaluation of entrepreneurs and non-entrepreneurs differs significantly, which may suggest that their overall mental frameworks do so as well. Considering that all the individuals in the sample were characterized as "experts in entrepreneurship," we are building on the notion that the knowledge of the market in terms of identifying, evaluating, and pursuing opportunities is just as important as technical or supply-side knowledge for entrepreneurs' evaluations of whether opportunities exist (Bryant, 2007; Trevelyan, 2008); however, we also acknowledge that individuals process environmental signals based on personal judgments, which are often biased (Arenius and Minniti, 2005; Baron, 1998).

The entrepreneurship literature agrees on the importance of context, as entrepreneurial decisions are influenced by how they are perceived. Several studies have argued that how one perceives the world depends on whether that person is an actor or an observer; our understanding of behavior as a result of certain "rules" and/or a particular role remains incomplete because of these rules. That is, it is not clear whether entrepreneurs' cognitive

differences stem from an environmental context that rewards individuals with certain thinking or whether these conditions encourage the development of a particular type of thinking (Grégoire et al., 2011). As a result, a core limitation of this study resides in our restricted understanding about whether perceptual differences emerge from the selection process of information, on how entrepreneurs organize it, or the way they interpret it.

Further, the reliability of this data may be affected by the fact that we are only comparing experts in Chile. This may suggest that the generalizability of the results is limited, and more evidence is needed. Further, due to the lack of available data on opportunity recognition over the subsequent years, we are unable to confirm that each group of experts will differ consistently and significantly over time. In regards to the methodological choices, we are constrained by the lack of causality; however, several prior studies on mental frameworks are based on the applied methods. Finally, establishing who is right or wrong, or who has more authority on the subject are beyond the scope of this study. Still, the results of this paper do provide empirical evidence that experiential learning and vicarious learning lead to different readings of the reality. We conceive this study as a first step towards a better understanding of how to reach expertise in the field of entrepreneurship.

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Tables and Figures

Table 1: Sample Composition

		Entrepreneurs	Non-Entrepreneurs	Total
Total sample		234 (68%)	110 (32%)	344 (100%)
Average age		47 years	50 years	48 years
Experience		12 years	10 years	11 years
Gender	*Male*	171 (71%)	69 (29%)	240 (70%)
	Female	63 (61%)	41 (49%)	104 (30%)
Educational level	*Technical training*	19 (8%)	6 (5%)	24 (7%)
	Professional training	40 (17%)	10 (9%)	50 (14%)
	University degree	73 (31%)	37 (34%)	110 (32%)
	Postgraduate degree	103 (44%)	57 (52%)	160 (47%)

Table 2: Scale Reliability

	Factor	Number of Items	Cronbach's Alpha
1	Financial support	6	0,781
2	Government policy: general	3	0,773
3	Government policy: regulation	4	0,601
4	Government programs	6	0,747
5	Entrepreneurial education: primary and secondary	3	0,804
6	Entrepreneurial education: post school	3	0,818
7	R&D transfer	6	0,799
8	Commercial infrastructure	5	0,753
9	Internal market: dynamics	2	0,926
10	Internal market: openness	4	0,691
11	Physical infrastructure	5	0,771
12	Cultural and social norms	5	0,862

Table 3: Chilean Entrepreneurial Framework Conditions, Mean Values by Years

	Factor	2010	2011	2012
1	Financial support	2.61	2.37	2.28
2	Government policy: general	2.88	2.95	2.91
3	Government policy: regulation	2.46	2.61	2.63
4	Government programs	2.73	2.81	2.82
5	Entrepreneurial education: primary and secondary	1.84	1.87	1.84
6	Entrepreneurial education: post school	2.86	2.86	2.81
7	R&D transfer	2.24	2.26	2.25
8	Commercial infrastructure	2.61	2.66	2.59
9	Internal market: dynamics	2.58	2.55	2.62
10	Internal market: openness	2.4	2.39	2.34
11	Physical infrastructure	3.85	3.82	3.76
12	Cultural and social norms	2.74	2.77	2.85

Table 4: Chilean Entrepreneurial Opportunity items, Mean Values by Years

	Variable	2010	2011	2012
1	In my region, there are plenty of good opportunities for the creation of new firms	3.33	3.44	3.54
2	In my region, there are more good opportunities for the creation of new firms than there are people able to take advantage of them	3.54	3.6	3.71
3	In my region, good opportunities for new firms have considerably increased in the past five years	3.56	3.75	3.94
4	In my region, individuals can easily pursue entrepreneurial opportunities	2.42	2.45	2.52
5	In my region, there are plenty of good opportunities to create truly high growth firms	3.02	3.11	3.33

Table 5: Mann-Whitney U Test Results for the Twelve Entrepreneurial Framework Conditions

Scales	Group	Valid Cases	Mean	Standard Deviation	Mean Ranges	Mann-Whitney U	Z	
Financial support	Non-entrepreneurs	110	2.3439	0.68405	201.54	9675.5	-3.723	***
	Entrepreneurs	234	2.467	0.71462	158.85			
Government policy: general	Non-entrepreneurs	110	2.8291	0.93752	198.94	9962	-3.397	***
	Entrepreneurs	234	3.0082	0.86981	160.07			
Government policy: regulation	Non-entrepreneurs	110	2.569	0.8094	188.45	11115	-2.049	**
	Entrepreneurs	234	2.5513	0.72869	165			
Government programs	Non-entrepreneurs	110	2.7728	0.74205	190.89	10847	-2.355	**
	Entrepreneurs	234	2.8206	0.67929	163.85			
Entrepreneurial education: primary and secondary	Non-entrepreneurs	109	1.7867	0.67615	187.65	10938	-2.101	**
	Entrepreneurs	233	1.8777	0.68929	163.94			
Entrepreneurial education: post school	Non-entrepreneurs	110	2.8341	0.86382	182.48	11222	-1.638	*
	Entrepreneurs	229	2.8346	0.80118	164			
R&D transfer	Non-entrepreneurs	110	2.2547	0.67723	184.4	11231.5	-1.736	*
	Entrepreneurs	231	2.2437	0.67086	164.62			
Commercial	Non-	110	2.5742	0.69548	187.55	11104.5	-	**

infrastructure	entrepreneurs						2.001	
	Entrepreneurs	233	2.5678	0.70252	164.66			
Internal market: dynamics	Non-entrepreneurs	109	2.6386	0.98702	157.81	11206	-1.624	*
	Entrepreneurs	230	2.5437	0.97018	175.78			
Internal market: openness	Non-entrepreneurs	110	2.329	0.71857	184.09	11485	-1.56	
	Entrepreneurs	233	2.3817	0.68435	166.29			
Physical infrastructure	Non-entrepreneurs	110	3.7692	0.72597	184.74	11413.5	-1.641	*
	Entrepreneurs	233	3.7232	0.71012	165.98			
Cultural and social norms	Non-entrepreneurs	110	2.7881	0.85052	188.85	10961.5	-2.167	**
	Entrepreneurs	233	2.8097	0.81797	164.05			

* p < 0.1, ** p < 0.05, ***p < 0.01 (two-tailed)

Table 6: Mann-Whitney U Test Results for Perceptions of Opportunity Existence

Statement	Group	Valid Cases	Mean	Standard Deviation	Mean Ranges	Mann-Whitney U	Z	
There are plenty of good opportunities for the creation of new firms	Non-entrepreneurs	109	3.53	1.01	168.88	12,388.50	-0.249	
	Entrepreneurs	231	3.57	1.05	171.37			
There are more good opportunities for the creation of new firms than there are people able to take advantage of them	Non-entrepreneurs	110	3.6	1.14	171.36	12,445.00	-0.185	
	Entrepreneurs	229	3.6	1.05	169.34			
Good opportunities for new firms have considerably increased in the past five years	Non-entrepreneurs	109	3.72	0.95	152.49	10,626.50	-1.795	*
	Entrepreneurs	220	3.91	0.92	171.2			
Individuals can easily pursue entrepreneurial opportunities	Non-entrepreneurs	110	2.58	0.91	186.2	11,132.00	-2.008	**

	Entrepreneurs	232	2.38	1.02	164.48		
There are plenty of good opportunities to create truly high-growth firms	Non-entrepreneurs	108	3.14	1.08	156.59	11,026.00	-1.79 *
	Entrepreneurs	231	3.37	1.09	176.27		

* p < 0.1, ** p < 0.05, ***p < 0.01 (two tailed)

Appendix A: Entrepreneurial Framework Conditions (EFC)

The following are the specific statements evaluated by each expert. For each statement, experts are asked to respond with their level of agreement on a Likert scale (1 = "strongly disagree" to 5 = "strongly agree"). This is a fraction of the National Expert Survey (NES) designed by the Global Entrepreneurship Monitor (GEM).

Financial Support

1. There is sufficient equity funding available for new and growing firms.
2. There is sufficient debt funding available for new and growing firms.
3. There are sufficient government subsidies available for new and growing firms.
4. There is sufficient funding available from private individuals (other than founders) for new and growing firms.
5. There is sufficient venture capitalist funding available for new and growing firms.
6. There is sufficient funding available through initial public offerings (IPOs) for new and growing firms.

Government Policy

1. Government policies (e.g., public procurement) consistently favor new firms.
2. The support for new and growing firms is a high priority for policy at the national government level.
3. The support for new and growing firms is a high priority for policy at the local government level.
4. New firms can get most of the required permits and licenses in about a week.
5. The amount of taxes is NOT a burden for new and growing firms.
6. Taxes and other government regulations are applied to new and growing firms in a predictable and consistent way.

7. Coping with government bureaucracy, regulations, and licensing requirements is not unduly difficult for new and growing firms.

Government Programs

1. A wide range of government assistance for new and growing firms can be obtained through contact with a single agency.
2. Science parks and business incubators provide effective support for new and growing firms.
3. There is an adequate number of government programs for new and growing businesses.
4. The people working for government agencies are competent and effective in supporting new and growing firms.
5. Almost anyone who needs help from a government program for a new or growing business can find what they need.
6. Government programs aimed at supporting new and growing firms are effective.

Entrepreneurial Education

1. Teaching in primary and secondary education encourages creativity, self-sufficiency, and personal initiative.
2. Teaching in primary and secondary education provides adequate instruction in market economic principles.
3. Teaching in primary and secondary education provides adequate attention to entrepreneurship and new firm creation.
4. Colleges and universities provide good and adequate preparation for starting up and growing new firms.
5. The level of business and management education provides good and adequate preparation for starting up and growing new firms.

6. The vocational, professional, and continuing education systems provide good and adequate preparation for starting up and growing new firms.

R&D Transfer

1. New technology, science, and other knowledge are efficiently transferred from universities and public research centers to new and growing firms.
2. New and growing firms have just as much access to new research and technology as large established firms.
3. New and growing firms can afford the latest technology.
4. There are adequate government subsidies for new and growing firms to acquire new technology.
5. The science and technology base efficiently supports the creation of world-class new technology-based ventures in at least one area.
6. There is good support available for engineers and scientists to have their ideas commercialized through new and growing firms.

Commercial Infrastructure

1. There are enough subcontractors, suppliers, and consultants to support new and growing firms.
2. New and growing firms can afford the cost of using subcontractors, suppliers, and consultants.
3. It is easy for new and growing firms to get good subcontractors, suppliers, and consultants.
4. It is easy for new and growing firms to get good, professional legal and accounting services.
5. It is easy for new and growing firms to get good banking services (checking accounts, foreign exchange transactions, letters of credit, and the like).

Internal Market

1. The markets for consumer goods and services change dramatically from year to year.
2. The markets for business-to-business goods and services change dramatically from year to year.

3. New and growing firms can easily enter new markets.
4. New and growing firms can afford the cost of market entry.
5. New and growing firms can enter markets without being unfairly blocked by established firms.
6. The anti-trust legislation is effective and well enforced.

Physical Infrastructure

1. The physical infrastructure (roads, utilities, communications, waste disposal) provides good support for new and growing firms.
2. It is not too expensive for a new or growing firm to get good access to communications (phone, internet, etc.).
3. A new or growing firm can get good access to communications (telephone, internet, etc.) in about a week.
4. New and growing firms can afford the cost of basic utilities (gas, water, electricity, sewer).
5. New and growing firms can get good access to utilities (gas, water, electricity, sewer) in about a month.

Cultural and Social Norms

1. The national culture is highly supportive of individual success achieved through personal efforts.
2. The national culture emphasizes self-sufficiency, autonomy, and personal initiative.
3. The national culture encourages entrepreneurial risk taking.
4. The national culture encourages creativity and innovativeness.
5. The national culture emphasizes the responsibility that the individual (rather than the collective) has in managing his or her own life.