

DOES EXPERTISE MATTER IN AN EVER-CHANGING AND UNCERTAIN ENVIRONMENT? A STUDY OF THE ENTREPRENEURIAL PROCESS OF SERIAL AND NOVICE ENTREPRENEURS

Rodney D'Souza²
University of Louisville
rodney.dsouza@louisville.edu

Bruce Kemelgor
University of Louisville
bhkemeo1@louisville.edu

ABSTRACT

This study contributes to the literature on serial and novice entrepreneurs by focusing on the process of entrepreneurship and the role of different knowledge structures in this process. We use theories from cognitive psychology that relate to experts and novices, and their use of prior knowledge in the creation of knowledge structures. Using a sample of 121 novice and serial entrepreneurs, we find that knowledge structures, as a function of prior experience in running a business venture, do not play a role in differentiating these entrepreneurs regarding the process of entrepreneurship. The implications and limitations of the study are discussed.

Keywords: experience, serial entrepreneur, novice entrepreneur, cognitive psychology

INTRODUCTION

Research suggests that prior knowledge plays an important role in differentiating between the performance of novice and serial entrepreneurs (Westhead & Birley, 1993; Westhead & Wright, 1998; Westhead, Ucbasaran, & Wright, 2005). We divide this prior knowledge into two parts—*startup specific knowledge* and *industry specific knowledge*. We define startup specific knowledge as knowledge gained by an individual when the individual founded two business ventures that they owned and operated before starting their current (third) business venture. This knowledge is tacit in nature

and extremely difficult to codify or transfer to others. Further, we define industry specific knowledge as information concerning a certain industry that is available at a given point in time, and that could be acquired by individuals who are willing to invest resources into gaining that information. This may include such information as an understanding of the size and structure of the market and the key success factors in the market.

The role of knowledge and decision making in uncertain environments has been discussed by scholars like Arrow (1964), and Dixit and Pindyck (1994).

² Corresponding Author

Decision-making in such environments may be based upon limited information. Environmental uncertainty, complexity, and ambiguity may further exacerbate the challenges associated with making decisions from limited information. Entrepreneurs may be prone to mistakes associated with these circumstances when engaged in decision-making. If prior information is of limited use and if complexity and ambiguity hamper decision-making skills (that directly impact performance), does an entrepreneur's start-up specific knowledge actually matter? If so, what impact does the type of knowledge—industry specific and startup specific—have on the performance of entrepreneurs?

This research paper examines whether serial entrepreneurs have startup specific knowledge that gives them an edge over entrepreneurs who do not have this startup specific knowledge as far as guiding behaviors related to starting a new business venture are concerned. Since prior research studies on serial, novice, and portfolio entrepreneurs have looked at the differences in traits, attitudes, and performance between novice, portfolio, and serial entrepreneurs (Westhead & Birley, 1993; Westhead & Wright, 1998; Westhead, Ucbasaran, & Wright, 2005), and in accordance with Aldrich (1999), Davidsson (2004), and Gartner (1985), this research focuses on the process of entrepreneurship by studying behaviors or actions related to the startup process. In their review of the focus of entrepreneurship research, Ucbasaran, Westhead, and Wright (2001) found that research on the entrepreneurial process has primarily looked at three areas: opportunity identification and information search, acquisition of resources, and strategies to grow the business. In keeping with this trend, we focus on (a) the resources, both tangible and intangible, needed for financing the new business venture and for creating a network and ties

to be used in starting the new business venture (based on the premise that, during the new venture creation process, individuals are seeking not only resources such as equipment, space, employees, and money, but also advice and information) (Birley, 1985); and (b) the method of opportunity search and discovery used by the entrepreneur (Herron & Sapienza, 1992) and the firm's performance. We also controlled for factors such as motivation to start the business, age, education, industry, and gender of the entrepreneur.

This study furthers the understanding about these types of entrepreneurs by taking into account how different types of knowledge (specifically, industry specific knowledge and venture startup knowledge) might play a role in explaining the differences in performance between these two sets of entrepreneurs. This is important because if we, as researchers, could distinguish what type of knowledge is better aligned with successful firm performance, we could better inform future generations of potential entrepreneurs about the skills that would be most essential for their success. For the purposes of this study, we define entrepreneurs as those individuals who create a new business around an innovative product or service. We focus on the process of entrepreneurship by applying theories from cognitive psychology that relate to experts and novices and their use of prior knowledge. We define serial entrepreneurs as those individuals who founded two business ventures that they owned and operated before starting their current (third) business venture, and novice entrepreneurs as those who have not previously started any business ventures before starting their current venture.

We explore potential differences caused by the presence or absence of prior knowledge between serial and novice entrepreneurs and reveal how these

differences affect factors such as networks and personal ties used, opportunity search and discovery methods, and the firm's performance.³ The research questions that this study addresses are as follows: what kind of prior knowledge is most important in affecting the performance of business ventures? More specifically, does a lack of startup experience negatively affect novice entrepreneurs?

This study provides a number of valuable contributions to entrepreneurial pedagogy and theory. Pedagogically, it generates knowledge about the teachable and learnable skills that result in successful entrepreneurship (Gustavsson, 2004; Ucbasaran, Westhead, & Wright, 2001). This paper also expands upon theory as it makes use of the literature from the field of cognitive psychology in an effort to further previous research on the subject of serial and novice entrepreneurs.

THEORY DEVELOPMENT AND HYPOTHESIS GENERATION

Cognition theories such as the chunking theory (Chase & Simon, 1973; Chase & Ericsson, 1982), the knowledge-based paradigm (Craik & Lockhart, 1972), and template theory (Gobet & Simon, 1996) propose that individuals with prior knowledge in a particular domain organize problems at a more abstract level than do individuals without that same prior knowledge. This is done with the aid of knowledge structures, which are, quite simply, templates that individuals use in order to give a certain environment form and meaning (Neisser, 1976). "Knowledge structures represent

organized knowledge about a given concept or type of stimulus" (Fiske & Taylor, 1984, p. 149). These knowledge structures help interpret problems, provide a basis for inference, and increase the speed of the problem-solving process by allocating attention, facilitating encoding, and retrieving the stored information from memory (Walsh, 1995).

Literature on information processing theory suggests that individuals with entrepreneurial expertise (serial entrepreneurs) develop certain knowledge structures and process information differently than individuals who have not developed these knowledge structures (novice entrepreneurs) (Mitchell, Smith, Seawright, & Morse, 2000). This suggests that individuals who are experts in the entrepreneurial domain (Mitchell et al., 2007) are capable of either possessing or acquiring certain entrepreneurial knowledge structures that would enable them to make use of information significantly better than individuals without expertise in the entrepreneurship domain (Baron & Henry, 2006; Mitchell, 2005; Mitchell & Chesteen, 1995). In addition, individuals with greater business ownership experience should be prone to discover new business opportunities (McGrath & MacMillan, 2000; Shane, 2000).

Because all serial entrepreneurs in our study have had the experience of two previous business ventures before the current one, and all the novice entrepreneurs have had no prior experience in the entrepreneurial process,⁴ we would expect behavioral differences between serial and novice entrepreneurs in the way they go about

³ The variables of network/ties used, opportunity search and discovery, and firm performance were chosen because, as suggested by Aldrich, (1999), Davidsson (2004), and Gartner (1985), we intend to study the process of entrepreneurship and not traits and characteristics of entrepreneurs.

⁴ We controlled for factors such as education and age so as to reduce mediating variables.

starting a new business venture. An observable difference between serial and novice entrepreneurs is the degree of schema elaboration, content complexity, and cross linkages with other schema. Beyond a certain level of preparation, experience and education do not inevitably lead to more elaborate and complex schema. The availability of these patterns is what allowed serial entrepreneurs to identify opportunities in a comparatively more accurate and faster fashion than novice entrepreneurs (Chi, Glaser, & Reis, 1982).

The study by Westhead et al. (2001) focused on the traits, characteristics, and motivations of serial and novice entrepreneurs. We, however, focus more on the process of the entrepreneur in the startup of their latest business venture (Aldrich, 1999; Davidsson, 2004; Gartner, 1985) and how this process is influenced by cognitive differences between these entrepreneurs. Therefore, the areas within which we chose to study these differences are the networks and personal ties formed by prior relationships, sources of finance, the methods used in search and discovery of the business idea, and the performance of the firm.

Networks

It is known that prior relationships are critical before an organization is formed (Aldrich & Zimmer, 1986; Hills, Lumpkin, & Singh, 1997). In order to understand organizational emergence, one needs to study individual relationships of the entrepreneur, how these relationships are established, and the ways in which commitments and trust of other individuals essential to the functioning of the venture are gained (Gartner, 1985; Gartner & Bush, 1999). Westhead and Wright (1998) suggest that personal and professional relationships could influence an individual's ability to access social,

human, and financial capital necessary for a business venture. It is also widely recognized that social networks play a central role in successful firm emergence and growth (Birley, 1985; Hansen, 1995; Hite & Hesterly, 2001; Larson & Starr, 1993).

Strong social networks tend to be more useful in the process of helping the entrepreneur to recognize opportunities and formulate business concepts (Hills et al., 1997). Entrepreneurs rely on their strong ties for advice, counsel, and access to other resources at a time when the firm might seem to have a highly uncertain future from a lack of legitimacy (Aldrich, 1999). As the firm begins to establish itself, however, strong networks are less likely to possess the breadth of resources a firm needs to meet the increasing resource requirements characteristic of early growth (Hite & Hesterly, 2001). Therefore, the entrepreneur needs to rely upon members of a *weak-tie network*, which would have the advantages of providing more resources (Dyer, 1994). These weak-tie networks are usually market-based, are likely to be less redundant, and reflect a larger and more powerful set of work-based ties (Burt, 1992; Hite & Hesterly, 2001; Uzzi, 1996). Therefore, it could be argued that as serial entrepreneurs have learned to work successfully with certain individuals in their network over time, they are likely to make use of fewer individuals in their network, instead seeking those who have more market specific information and knowledge to aid in the start of their current business venture. McGrath and MacMillan (2000) and Shane (2000) suggest that serial entrepreneurs are expected to have better contacts and access to market specific information. Serial entrepreneurs are expected to have better managerial and technical skills, better network of contacts, access to market specific information and thus

should be better equipped to take advantage of new business opportunities (McGrath & MacMillan, 2000; Shane, 2000). It is also suggested that serial entrepreneurs may learn from their initial entrepreneurial experience, thus adding to their skills (Stam et al., 2006). Conversely, novice entrepreneurs, who have not previously worked with individuals in their network to start a business venture, will have to interact with a larger number of individuals before they come to understand which of these individuals will be of most value to their business venture.

As mentioned, entrepreneurs who have gained entrepreneurial expertise by starting previous business ventures before the current business venture would make use of knowledge structures already in place to give the current environment form and meaning. These knowledge structures could be in the form of knowing which individuals are necessary as resources at particular stages in a firm's development or when faced by changes to the firm.⁵ Therefore, we would expect serial entrepreneurs to make use of a smaller number of network contacts in starting their current business venture. This discussion leads to our first hypothesis:

H₁: *Serial entrepreneurs will make use of a smaller number of network contacts than will novice entrepreneurs in starting their current business venture.*

Sources of Finance

Researchers such as Gartner (1985), Gartner and Bush (1999), and Westhead and Wright (1998) have suggested that personal and professional relationships could influence an individual's ability to access social, human, and financial capital

necessary for a business venture. Therefore, access to capital is also associated with an individual's strong and weak networks and ties.

Serial entrepreneurs might have the privilege of greater access to funds by way of accumulated wealth from their previous business ventures, which they could use to invest in their current business. If personal assets are not used to invest in the business, they can be used (as collateral) to help secure financing from financial institutions, such as banks (Singh & DeNoble, 2003). More importantly, however, many serial entrepreneurs have had the opportunity to develop a wider range of business ties and networks than have novice entrepreneurs, and these ties and networks could be influential in providing the serial entrepreneurs with funds that novice entrepreneurs might not have access to.

This discussion leads to our second hypothesis:

H₂: *Serial entrepreneurs are likely to use financial partners for a greater percentage of initial funding for their business than would novice entrepreneurs.*

Firm Performance

Of the many factors that influence the performance of new ventures, one of the most important would be the entrepreneur who owns and operates the business venture. Recent evidence regarding the relationship between the founder's prior experience and firm performance has been established by several researchers (e.g., Helfat, 2000; Holbrook, Cohen, Hounshell, & Klepper, 2000). Furthermore, the literature cited

⁵ These changes could represent internal changes, such as change in management, or external changes, such as a change in the competitive environment.

previously suggests that individuals with prior knowledge (serial entrepreneurs) would have an advantage over individuals who do not possess this prior knowledge (novice entrepreneurs) when assessing, encoding, and reacting to situations. Thus, individuals with prior knowledge should be able to increase the performance of a business venture in comparison to business ventures operated by individuals who do not possess this prior knowledge (Chandler, 1996; Chase & Simon, 1973; Westhead & Wright, 1998). Based on this reasoning, one would expect that firms run by serial entrepreneurs would outperform firms run by novice entrepreneurs.

This brings us to our third hypothesis:

H₃: *Firms owned by serial entrepreneurs will financially outperform firms owned by novice entrepreneurs.*

Opportunity Search and Discovery

An individual recognizes opportunities and ideas that are related to information the individual already possesses (Venkataraman 1997, Shane 2000). Also, as information is a byproduct of the distinctive life experiences of an individual, each entrepreneur might have a different sets of information (Fiet, 1996), and therefore some individuals might possess information that others do not have. This knowledge, whether gained from prior work experience, education, life experiences, or other means gives rise to idiosyncratic knowledge structures, which in turn influence the individual's ability to understand, infer, and apply new information in ways that those lacking such knowledge would find difficult if not impossible to replicate (Shane, 2000, Kernelgor et al., 2005).

Research on the topic of opportunity search and discovery has shown that an individual's knowledge about markets,

how to serve those markets, and knowledge of customers' problems influenced their discovery of business ideas (Shane, 2000). In addition, work by Ronstadt (1988) indicates that working in an industry tends to lead to the identification of more entrepreneurial opportunities. Therefore, we expect that there will be differences in the type of information and sources of that information used by individuals in choosing their current business venture. Researchers have also found that when novices and experts were given a certain situation to analyze, novices looked at the positives as well as the negative scenarios of the given situation, whereas experts looked only at the positives of the given situation (Chase & Simon, 1973; Chi, Glaser, & Rees, 1982). Therefore, realistic mental representations of complex and interacting factors (largely from experience) produce comparatively more accurate and faster opportunity identification in serial versus novice entrepreneurs (Chi et al., 1982). This suggests that novices would conduct a more thorough and deliberate search for opportunities in terms of their knowledge structures, while serial entrepreneurs will make use of their existing heuristics and biases when making a decision about which business venture they should undertake. Following this reasoning, we propose that novice entrepreneurs will make use of their specialized education and hobbies to a greater extent in the search and discovery of opportunities than will serial entrepreneurs, as those are the primary places that individuals have access to for searching for potential business opportunities (Fiet, 1996). Further, we propose that serial entrepreneurs would use their occupations, on-the-job routines, and on-the-job technology to a greater extent than will novice entrepreneurs. This discussion leads to our final set of hypotheses:

H4a: *Novice entrepreneurs will show higher levels of search and discovery using hobbies and specialized education as information channels in choosing their current business opportunity than will serial entrepreneurs.*

H4b: *Serial entrepreneurs will show higher levels of search and discovery using occupation, job routines, and on-the-job technology in choosing their current business opportunity than will novice entrepreneurs.*

METHODOLOGY

Data

A self-report questionnaire was sent to 140 participants in three metropolitan cities in the United States. The potential respondents were identified and invited to participate through local entrepreneurship furthering centers (e.g., small business development centers or area technology councils). The survey was conducted using an online survey.⁶ Potential participants were sent an e-mail through the entrepreneurship furthering center explaining the survey and its functions, along with a link to the survey. The survey was sent out to 298 individuals; of those, 140 responded, giving the survey a 47% response rate. The initial analysis involved dealing with missing data, leaving us with 121 usable responses; 63 respondents were novice entrepreneurs and 58 respondents were serial entrepreneurs. The average age of the companies was 8.4 years.

Females accounted for 11% of the entrepreneurs, while males accounted for the remaining 89% percent. Because all of the firms in the sample are privately held and the data are confidential, we were unable to independently establish the reliability of the data. However, the entrepreneurship furthering centers assured us of the representativeness of the sample.

Measures

Information on networks was gathered using a grid, wherein respondents entered the number of individuals they consulted with from each group⁷ for the startup and launch of their business. Information on initial financing for their business was gathered by asking respondents what percentage of their initial financing came from personal funds, family and friends, and financial institutions other than family and friends. Financial performance data was gathered using net profit after tax as a percentage of sales. Finally, their reliance on proprietary information channels (knowledge structures) in choosing the business opportunity was determined by asking respondents the extent to which the information channels they used⁸ influenced their decision in starting the business. Additional details can be seen in Table 1 below.

We controlled for the following factors: size of firm, industry within which the firm operated, and the age of the firm. Even though our data are ordinal in nature, we used them in a regression

⁶ There are some drawbacks of a web-based survey (Dillman 2000), but we were advised to do so by the entrepreneurship councils because they had easy access to the e-mail databases of their clients.

⁷ Network grid included: Family, Friends, Previous company associates, Previous business owners, Other business owners, Workshops, Accountant, Attorney, University consulting/training, SBA services, Bank, Trade groups, Suppliers, Customers, Competitors, Local government sources, Business Consultants, University research laboratories, and Other.

⁸ Information channels included: Occupation, On-the-job routines, Job-related technology, Specialized education, Social relations/networks, and Hobbies.

analysis in accordance with Borgatta and Bohrnstedt (1980), Davidsson (2004), and Michell (1986). These researchers claim that a rating scale is a very crude representation of an underlying interval scale and that the only difference between the two is that the more crude the rating scale, the greater the measurement of error. Therefore, we ran a logistic regression analysis on our data, followed by a nonparametric statistical test (Mann-Whitney U) and nonparametric measures of association, to identify the direction of our results and to confirm our findings from the regression.

RESULTS

Please refer to Tables 2, 3 and 4 for a summary of the analysis.

Networks/Relationships

As seen in Table 2b, there is no difference between the median scores of serial entrepreneurs and novice entrepreneurs, suggesting serial entrepreneurs relied on both strong and weak ties, along with networks, to the same extent as did novice entrepreneurs. Table 3 and Table 4 also show no statistically significant difference between networks used by serial and novice entrepreneurs, thereby not supporting Hypothesis 1.

Use of Financial Partners

There is no difference in the median score regarding the use of financial partners for serial and novice entrepreneurs as can be seen in Table 2b. This suggests that serial

Table 1: Constructs used in the Survey

Construct	Measure
Resources Acquisition – Finance	What percentage of the financing came from financial backers other than family and friends? _____% What percentage of the financing came from your personal savings? _____%
Resource Acquisition - Networks	
Opportunity Discovery & Search for Information	5 point likert scale <ul style="list-style-type: none"> • Occupation • On-the-job routines • Job-related technology • Specialized education • Hobbies
Business Strategy	5 point likert scale <ul style="list-style-type: none"> • Expand businesses • Introduce new products • Take calculated risks • Make decisions under uncertainty and risk
Performance	Net profit after tax <ul style="list-style-type: none"> • Not profitable operating business • 0 – 2% of sales • 3 – 5% of sales • 6 – 10% of sales • Over 10% of sales

Table 2a: Descriptive Statistics

Novice and Serial Entrepreneur		N	Mean	Std. Deviation	Minimum	Maximum
Novice	Net Profit After Tax as Percent of Sales	53	3.7170	1.49843	1.00	5.00
	Use of Networks	52	1.8462	3.82656	0.00	25.00
	Investment from Financial Institutions	53	15.2830	32.71989	0.00	100.00
	Occupation as Information channel	49	3.6122	1.28803	1.00	5.00
	On the Job Routine as information channel	50	2.7400	1.42585	1.00	5.00
	On the Job Technology as information channel y	49	3.1429	1.38444	1.00	5.00
	Specialized Education as information channel	50	3.2400	1.30243	1.00	5.00
	Network as information channel	50	3.2600	1.38225	1.00	5.00
	Hobbies as information channel	49	2.3469	1.46559	1.00	5.00
Serial	Net Profit After Tax as Percent of Sales	47	3.1064	1.82058	1.00	5.00
	Use of Networks	48	3.0625	5.77377	0.00	30.00
	Investment from Financial Institutions	47	26.3404	38.70304	0.00	100.00
	Occupation as Information channel	47	3.5106	1.54459	1.00	5.00
	On the Job Routine as information channel	47	2.7872	1.50270	1.00	5.00
	On the Job Technology as information channel	47	3.0426	1.45897	1.00	5.00
	Specialized Education as information channel	47	2.7234	1.44014	1.00	5.00
	Network as information channel	47	3.1064	1.30607	1.00	5.00
	Hobbies as information channel	46	1.9565	1.19176	1.00	5.00

Table 2b: Summary Statistics⁺

		Net Profit After Tax as Percent of Sales	Use of Networks	Investment from Financial Institutions	Occupation as Information channel	On the Job Routine as information channel	On the Job Technology as information channel	Specialized Education as information channel	Network as information channel	Hobbies as information channel
Novice	Median	4.0000	1.0000	0.0000	4.0000	3.0000	3.0000	3.0000	3.0000	2.0000
	Minimum	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
	Maximum	5.00	25.00	100.00	5.00	5.00	5.00	5.00	5.00	5.00
Serial	Median	4.0000	1.0000	0.0000	4.0000	3.0000	3.0000	2.0000	3.0000	1.0000
	Minimum	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
	Maximum	5.00	30.00	100.00	5.00	5.00	5.00	5.00	5.00	5.00

⁺Minimum and maximum refer to the minimum and maximum scores in the survey.

Table 3: Logistic Regression

	B	S.E.	Wald	df	Sig.	Exp
Net Profit After Tax as Percent of Sales	-0.232	0.150	2.414	1	0.120	0.793
Use of Networks	0.062	0.084	0.543	1	0.461	1.064
Investment from Financial Institutions	-0.002	0.008	0.042	1	0.838	0.998
Occupation as Information channel	-0.048	0.228	0.045	1	0.831	0.953
On the Job Routine as information channel	0.182	0.213	0.730	1	0.393	1.200
On the Job Technology as information channel	-0.113	0.239	0.223	1	0.637	0.893
Specialized Education as information channel	-0.225	0.192	1.367	1	0.242	0.799
Network as information channel	-0.182	0.191	0.914	1	0.339	0.833
Hobbies as information channel	-0.089	0.193	0.211	1	0.646	0.915

* Sig at 0.05 level

Table 4 : Results of Mann—Whitney U Test

	Net Profit After Tax as Percent of Sales	Use of Networks	Investment from Financial Institutions	Occupation as Information channel	On the Job Routine as information channel	On the Job Technology as information channel	Specialized Education as information channel	Network as information channel	Hobbies as information channel
Mann-Whitney U	1135.500	1168.500	1088.000	1145.500	1158.000	1110.500	922.000	1094.000	965.000
Wilcoxon W	2311.500	2653.500	2628.000	2370.500	2433.000	2238.500	2050.000	2222.000	2046.000
Z	-1.283	-0.896	-1.854	-0.046	-0.126	-0.476	-1.865	-0.599	-1.277
Asymp. Sig. (2-tailed)	0.199	0.370	0.064	0.964	0.900	0.634	0.062	0.549	0.201

* - Sig at 0.05 level

entrepreneurs as well as novice entrepreneurs used financial partners to an equal extent. Also, results from Table 3 and Table 4 show that there is no statistically significant difference between serial and novice entrepreneurs concerning the use of financial partners. Thus Hypothesis 2 was not supported.

Firm Performance

As mentioned previously, we controlled for effects of the industry by using a general unit of analysis of net profit for firm performance rather than an industry specific one. The absence of a difference in the median scores of serial and novice entrepreneurs indicates that serial entrepreneurs' businesses (Table 2b) did not financially outperform those founded by novice entrepreneurs. Again, as seen in Table 3 and Table 4, there is no statistically significant difference between the financial performance of businesses started by serial and novice entrepreneurs, thereby not supporting Hypothesis 3.

Opportunity Search and Discovery

The statistics in Table 2b suggest that novice entrepreneurs used their hobbies (median score, 2.0) and specialized education (median score, 3.0) as information channels to a greater extent than did serial entrepreneurs. The statistics in Table 2b also suggest that there was no difference in the use of occupation, job routines, and on-the-job technology. The differences between serial and novice entrepreneurs, in terms of their hobbies and specialized education serving as their information channels, were not statistically significant, so Hypotheses 4a and 4b (shown in Tables 3 and Table 4) were not supported.

Please refer to Table 5 for a summary of the findings of the study.

DISCUSSION AND LIMITATIONS

Davidsson (2004) suggests that researchers should focus more on the theoretical rather than statistical implications of their data. The readers should focus more on what the results mean for the theory itself rather than on whether or not the findings are statistically significant. Some findings of the study will not be statistically significant; this can sometimes be attributed to the small sample size of the study. As summarized in Table 4, the study found many interesting results,

some of which deviated from what was suggested by theory (Davis, 1971). These findings suggest that prior experience in running a business venture does not play a significant role in differentiating serial from novice entrepreneurs.

Based on the literature on expert information processing, we hypothesized that serial entrepreneurs would make use of a smaller number of ties and networks than would novice entrepreneurs. However, knowledge structures (i.e., information) are extremely domain specific and cannot easily be transferred

Table 5: Summary of findings

Theory Suggested	The Research Found
Serial entrepreneurs will make use of a smaller number of network contacts than will novice entrepreneurs in starting their current business venture.	Serial entrepreneurs did not make use of a smaller number of network contacts did novice entrepreneurs in starting their current business venture
Serial entrepreneurs are likely to use financial partners for a greater percentage of initial funding for their business than are novice entrepreneurs	Serial entrepreneurs did not make use of financial partners for a greater percentage of initial funding for their business than did novice entrepreneurs.
Firms owned by serial entrepreneurs will financially outperform firms owned by novice entrepreneurs	Firms owned by serial entrepreneurs did not financially outperform firms owned by novice entrepreneurs
Novice entrepreneurs will show higher levels of search and discovery using hobbies and specialized education as information channels in choosing their current business opportunity than will serial entrepreneurs.	Novice entrepreneurs did show higher levels of search and discovery using hobbies and specialized education as information channels in choosing their current business opportunity than did serial entrepreneurs.
Serial entrepreneurs will show higher levels of search and discovery using occupation, job routines, and on the job technology in choosing their current business opportunity than will novice entrepreneurs.	Serial entrepreneurs did not show higher levels of search and discovery using occupation, job routines, and on the job technology in choosing their current business opportunity than did novice entrepreneurs.

from one domain to another. In addition, these knowledge structures do not prove helpful when the individual with prior knowledge is placed in a new and unfamiliar situation or environment (Chase & Simon, 1973; Chi, Glaser, & Rees, 1982). This is often the case in entrepreneurship, where no two business ventures are exactly alike, and a change in internal or external environmental factors will affect the business venture. This could help explain why the first hypothesis was not supported.

While most studies of novice entrepreneurs portray them as lacking information regarding start-up processes, thus leading to a reliance upon social networks and particularly strong-tie networks, our findings offer a different perspective. Given that most of the novice entrepreneurs are second-career entrepreneurs, it seems reasonable to assume they economized on information processing (DeCarolis & Saporito, 2006). Either because of their work experience or the parameters of the business idea, they relied upon a small social network to help refine and validate their plans. Who they chose to contact is influenced by existing relationships (Nebus, 2006), and since the vast majority of our novice entrepreneurs were second-career entrepreneurs with previous work experience (Kemelgor, Henley, & D'Souza, 2005), they likely relied upon close associates who they trusted for advice. Kahneman and Lovallo (1993) found that individuals who discuss business concepts with a limited number of advisors are more likely to receive very positive feedback. Thus, the novice entrepreneur probably relied upon a limited number of information sources (i.e., small network) to make decisions. This minimizes the theorized differences regarding serial and novice entrepreneurs and their reliance on large, strong-tie networks.

Theory proposed that serial entrepreneurs were more likely to use financial partners than novice entrepreneurs in starting their current business venture. The results, however, do not support this argument. This could be explained, in part, by the fact that novice entrepreneurs could have access to individuals already incorporated into their networks if they worked in a particular industry before deciding to switch careers to become an entrepreneur. In our sample, 51 out of 63 novice entrepreneurs were second-career entrepreneurs, and their potential contacts within their network likely played a role in securing financial partners to assist them in starting their business ventures. Related to this is the concept of social competence (Baron & Markman, 2003), which is defined as an aspect of behavior that represents the entrepreneurs' overall effectiveness in their interactions with others. An entrepreneur's overall effectiveness is considered to be the combined effects of various social skills such as the ability to make a good impression and to persuade others to alter their views or behavior (Baron & Markman, 2003). Possessing this ability is positively related to the financial capital secured by the entrepreneur (Baron & Markman, 2003). In addition, one must be cognizant of the personal resources of the entrepreneur. In examining our novice entrepreneurs, we find that almost all of them have previous work experience. This previous occupational experience, coupled with their educational and financial background, suggests that as first time entrepreneurs, our sample represents a common finding: many novice entrepreneurs have a lot of financial independence (Korunka, Frank, Lueger, & Mugler, 2003). Thus, it is not surprising that there is no statistical difference in the novice and serial entrepreneurs with regard to the use of financial partners.

The study next examined financial performance, and based on the existing literature, we hypothesized that firms owned by serial entrepreneurs would financially outperform firms owned by novice entrepreneurs. One has to keep in mind, however, that this performance is domain specific, and when individuals with prior knowledge are placed in unfamiliar situations, they perform just as well as individuals who do not have access to prior knowledge (Chase & Simon, 1973; Chi, Glaser, & Rees, 1982).⁹ Another possible explanation for these findings may exist in the concept of entrepreneurial competence. Entrepreneurial competence is defined as a combination of the ability to identify and pursue opportunities and to gain and organize resources (Erikson, 2002). It would seem logical to assume that serial entrepreneurs would, by virtue of their prior experience, possess much more competence than novice entrepreneurs. However, Erikson (2002) noted that this competence increases as people age due to their accumulation of knowledge and resources over time. Therefore, any significant difference in entrepreneurial competence might have been mitigated by the finding that although serial entrepreneurs were working on their third business, 51 of our 63 novice entrepreneurs had a career in the industry prior to launching their first enterprise.

The study also looked at the use of an individual's proprietary information channels as a factor leading to the identification of entrepreneurial opportunity (Fiet, 1996; Shane, 2000). Although not statistically significant, the findings in the study did support what theory had proposed, lending credence to the argument that effectively scanning and evaluating proprietary sources of information channels are

critical to the opportunity discovery process. Here again, second-career novice entrepreneurs could be the reason that there was no difference in the use of on-the-job routines, technologies, and networks when searching for opportunities. This supports the argument that people recognize opportunities and ideas related to information they already possess (Venkataraman, 1997). This discovery process needs to be enriched by educators and others working with aspiring entrepreneurs by way of helping individuals mine their proprietary information channels. These potential entrepreneurs could group information channels (such as on-the-job routines, specialized education, and hobbies) into consideration sets based on their prior knowledge to help with the search of opportunities (Fiet, 1996, 2000, 2002). As Fiet (2002, p. 118) suggests, these consideration sets could be sources of discovery as well as sources of information that could be used to make changes to the consideration set.

While this study has furthered our knowledge of the similarities in serial and novice entrepreneurs with regards to the process of entrepreneurship, the study does have a couple of limitations that one should keep in mind. To begin with, the small sample size of the study reduces its generalizability. Further research involving larger samples needs to be conducted to either support or refute what this study has found. As mentioned earlier, the study was conducted by way of a self-report study. The data collected has not been authenticated by other sources.

⁹ Even though this research was performed at the individual level, we propose that the individual performance of the entrepreneur will be a crucial factor that would effect the performance of the firm as a whole.

CONCLUSION AND IMPLICATIONS

Researchers have found that venture capitalists are intensely interested in behavioral and psychological characteristics of the entrepreneur, and that they are more comfortable investing in entrepreneurs who have a proven track record (Cooper, 1993; MacMillan, Siegel, & Narasimha, 1985; MacMillan, Zemmann, & Narasimha 1987; Shepherd, 1999). This study could help inform investors by showing that when dealing with -hanging environments and uncertainties, serial entrepreneurs are not very different from novice entrepreneurs. In fact, one empirical study shows no significant difference between the performance of businesses owned by serial entrepreneurs and that of businesses owned by novice entrepreneurs (Birley & Westhead, 1993). In an applied sense, these investors need to appreciate and evaluate the concept and potential success of a new venture, rather than primarily focusing upon prior experience of the serial entrepreneur. Additionally, the findings of this study could imply that the industry experience gained by serial entrepreneurs is negated by the industry experience gained by second-career entrepreneurs. Therefore, it is suggested that the differences in behavior could be attributed to, among other variables, the lack of prior startup experience in novice entrepreneurs.

Even with its limitations, this study adds to the literature on serial and novice entrepreneurs by furthering a previous study and taking into consideration factors of knowledge structures, and the effects that these knowledge structures have on the process of entrepreneurship. This study helps us understand that knowledge is largely domain specific, thus suggesting that serial entrepreneurs become more expert only if they are confronting repeated sameness in their situations.

REFERENCES

- Aldrich, H. (1999). *Organizations Evolving*. Thousand Oaks, Sage Publications, London.
- Abelson, R.P. & Black, J.B. (1986). Introduction. In: J.A. Galambos, R.P. Abelson, and J.B. Black (Eds.), *Knowledge Structures*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Baron, R. (1998). Cognitive mechanisms in entrepreneurship: Why and when entrepreneurs think differently from other people. *Journal of Business Venturing*, 13 (4): 275-294.
- Baron, R. & Henry, R.A. (2006). Why do some entrepreneurs achieve extraordinary success? Insights from cognitive science research on exceptional performance. Paper presented at the Babson Research Conference, Bloomington, IN.
- Baron, R.A. & Markman, G.D. (2003). Beyond social capital: The role of entrepreneurs' social competence in their financial success. *Journal of Business Venturing*, 18, 41-60.
- Bhide, A. (1999). *The Origin and Evolution of New Businesses*. Oxford: Oxford University Press.
- Birley, S. (1985). The role of networks in the entrepreneurial process. *Journal of Business Venturing*, 1, 107-117
- Borgatta, E.F. & Bohrnstedt, G.W. (1980). Level of measurement: once over again. *Sociological Methods and Research*, 9(2), 147-160.
- Burt, R.S. (1992). *Structural Holes: The Social Structure of Competition*. Cambridge, MA: Harvard University Press.
- Chandler, G. (1996). Business similarity as a moderator of the relationship between pre-ownership experience and venture performance.

- Entrepreneurship Theory and Practice*, 20(1), 51–65.
- Chase, W.G., & Ericsson, K.A. (1982). Skill and working memory. In: Bower, G.H. (Ed.). *The Psychology of Learning and Motivation*, Vol. 16. Academic Press, New York.
- Chen, C., Greene, P., & Crick, A. (1998). Does entrepreneurial self-efficacy distinguish entrepreneurs from managers? *Journal of Business Venturing*, 13, 295–316.
- Chase, W. G., & Simon, H. A. (1973). *The mind's eye in chess*. In: Chase W.G. (Ed.). *Visual Information Processing*. Academic Press, New York.
- Cooper, A. (1993). Challenges in predicting new firm performance. *Journal of Business Venturing*, 8(3), 241–253.
- Craik, F.I. & Lockhart, R.S. (1972). Levels of processing: A framework for memory research. *Journal of Verbal Learning and Verbal Behavior*, 11, 671–681.
- Davidsson, P. (2004). *Researching Entrepreneurship*. New York: Springer.
- Davis, M. S. (1971). That's Interesting! *Philosophy of Social Science*, 1, 309–344.
- De Carolis, D. & Saporito, P. (2006). Social capital, cognition and entrepreneurial opportunities: A theoretical framework. *Entrepreneurship Theory and Practice*, 41–56.
- Dillman, D. A. (2000). *Mail and Internet Surveys: The Tailored Design Methods*. Second edition. New York: Wiley.
- Dixit, A. K. & Pindyck, R. S. (1994). *Investment under uncertainty*. Princeton UP, Princeton.
- Dyer Jr., W.G. (1994). Toward a theory of entrepreneurial careers. *Entrepreneurship Theory & Practice*, 19(2), 7–22.
- Ericsson, K.A. & Staszewski, J.J. (1989). *Skilled memory and expertise: mechanisms of exceptional performance*. In: Klahr, D., Kotovsky, K. (Eds.). *Complex Information Processing: The Impact of Herbert A. Simon*. Erlbaum, Hillsdale, NJ.
- Erikson, T. (2002). Entrepreneurial capital: The emerging organization's most important asset. *Journal of Business Venturing*, 17(3), 275–290.
- Fiet, J. (1996). The informational basis of entrepreneurial discovery. *Small Business Economics*, 8, 419–430.
- Fiet, J. (2000). Entrepreneurial competence as knowledge. *Presented at the annual meeting of the Academy of Management, Toronto, Canada*.
- Fiet, J. (2002). *The Systematic Search for Entrepreneurial Discoveries*. Quorum Books, Westport CT.
- Fisk, S.T. & Taylor, S.E. (1984). *Social Cognition*, MA: Addison-Wesley.
- Gartner, W. (1985). A conceptual framework for describing the phenomenon of new venture creation. *Academy of Management Review*, 10(4), 696–706.
- Gartner, W. B. (1988). Who is an entrepreneur? is the wrong question. *American Journal of Small Business*, 12, 11–32.
- Gartner, W., & Brush, C.B. (1999). Entrepreneurship as organizing: Emergence, newness and transformation. *Presented at the Academy of Management Entrepreneurship Division Doctoral Consortium, Chicago*.

- Gobet, F. & Simon, H.A. (1996). Templates in chess memory: A mechanism for recalling several boards. *Cognitive Psychology*, 31, 1-40.
- Greve, A. & Salaff, J. (2003). Social networks and entrepreneurship. *Entrepreneurship Theory & Practice*, 28(1): 1-22.
- Gustavsson, V. (2004). *Entrepreneurial Decision-Making*. Doctoral dissertation, Jönköping International Business School, Jönköping.
- Hair, J., Anderson, R., Tatham R., & Black, W. (2005). *Multivariate Data Analysis* (5th ed.). Singapore: Pearson Education.
- Hansen, E.L. (1995). Entrepreneurial networks and new organizational growth. *Entrepreneurship Theory and Practice*, 19(4), 7-19.
- Helfat, C.E., (2000). Guest editor's introduction to the special issue: The evolution of firm capabilities. *Strategic Management Journal*, 21(10/11), 955.
- Herron, L. & Sapienza, H.J (1992). The entrepreneur and the initiation of new venture launch activities. *Entrepreneurship: Theory & Practice*, 17(1), 49-55.
- Hills, G., Lumpkin, G.T., & Singh, R.P. (1997). Opportunity recognition: Perceptions and behaviors of entrepreneurs. *Frontiers of Entrepreneurship Research*. Wellesley, MA: Babson College, 203-218.
- Hinsley, D.A., Hayes, J.R., & Simon, H.A. (1977). *From words to equations: meaning and representation in algebra word problems*. In: Just, M.A., Carpenter, P.A. (Eds.). *Cognitive Processes in Comprehension*, Hillsdale, NJ: Erlbaum.
- Hite, J., & Hesterly, W.S. (2001). The evolution of firm networks: From emergence to early growth of the firm. *Strategic Management Journal*, 22, 275-286.
- Holbrook, D., Cohen, W.M., Hounshell, D.A., & Klepper, S. (2000). The nature, sources, and consequences of firm differences in the early history of the semiconductor industry. *Strategic Management Journal*, 21(10/11), 1017.
- Jones, T. M. (1995). Instrumental stakeholder theory: A synthesis of ethics and economics. *Academy of Management Review*, 20(2), 404-437.
- Kahneman, D. & Lovallo, D. (1993). Timid choices and bold forecasts. A cognitive perspective on risk taking. *Management Science*, 39, 17-31.
- Kemelgor, B., Henley, G., & D'Souza R. (2005). The dynamics of entrepreneurial entry and firm performance of first career and second career entrepreneurs as mediated by prior knowledge. *Presented at BABSON Entrepreneurship Research Conference Boston MA*.
- Korunka, C., Frank, H., Lueger, M., & Mugler, J. (2003). The entrepreneurial personality in the context of resources, environment, and the startup process: A configurational approach. *Entrepreneurship Theory and Practice*, 28(1), 23-42.
- Larkin, J.H., Mc Dermott, J., Simon, D.P. & Simon, H.A. (1980). Expert and novice performance in solving physics problems. *Science*, 208, 1335-1342.

- Larson, A.L. & Starr, J.A. (1993). A network model of organizational formation. *Entrepreneurship Theory and Practice*, 17(2): 5-15.
- MacMillan, I.L., Siegel, R., & Narasimha, P.N. (1985). Criteria used by venture capitalists to evaluate new venture proposals. *Journal of Business Venturing*, 1(2), 119-128.
- MacMillan, I.L., Zemann, L., & Narasimha, P.N. (1987). Criteria distinguishing successful from unsuccessful ventures in the venture screening process. *Journal of Business Venturing*, 2(2): 123-137.
- March, J. (1991). Exploration and exploitation in organizational learning. *Organization Science*, 2, 71-87.
- Michell, J. (1986). Measurement scales and statistics: A clash of paradigms. *Psychological Bulletin*, 100(3), 398-407.
- Miller, D. (1993). The architecture of simplicity. *Academy of Management Review*, 18, 116-138.
- Mitchell, R. & Chesteen, S. (1995). Enhancing entrepreneurial expertise: Experiential pedagogy and the new venture expert script. *Simulation & Gaming*, 26(3): 288-306.
- Mitchell, R.K., Smith, B., Seawright, K.W., & Morse, E.A. (2000). Cross-cultural cognitions and the venture creation decision. *Academy of Management Journal*, 43(5): 974-993.
- Mitchell, R.K. (2005). Tuning up the value creation engine: On the road to excellence in International Entrepreneurship Education. In: J.A. Katz & D.A. Shepherd (Eds.), *Advances in entrepreneurship, firm emergence and growth: Vol. 8. Cognitive approaches to entrepreneurship research* (pp. 185-248). Greenwich, CT: JAI Press.
- Mitchell, R. K., Busenitz, L. W., Bird, B., Gaglio, C. M., McMullen, J. S., Morse, E. A., & Smith, J. B. (2007). The Central Question in Entrepreneurial Cognition Research 2007. *Entrepreneurship Theory and Practice*, 31(1), 1-27
- Nebus, J. (2006). Building Collegial Information Networks: A Theory of Advice Network Generation. *Academy of Management Review*, 31(3), 615-637.
- Neisser, U. (1976). *Cognitive Psychology*. New York: Appleton-Century-Croft.
- Nisbett, R., & Ross, L. (1980). *Human Inference, Strategies and Shortcomings of Social Judgment*. Englewood Cliffs, NJ: Prentice-Hall.
- Ronstadt, R. (1988). The corridor principle. *Journal of Business Venturing*, 3(1), 31-40.
- Rosenthal, R., & Rosnow, R.L. (1991). *Essentials of Behavioral Research: Methods and Data Analysis* (2nd ed.). Boston, MA: McGraw-Hill.
- Rowley, T.J. (1997). Moving beyond dyadic ties: A network theory of stakeholder influence. *Academy of Management Review*, 22(4): 887-910.
- Shane, S. (2000). Prior Knowledge and the Discovery of Entrepreneurial Opportunities. *Organization Science*, 11(4), 448-470.
- Shepherd, D.A. (1999). Venture capitalists' assessment of new venture survival. *Management Science*, 45(5), 621-632.
- Simon, H.A. (1989). *Models of Thought*. New Haven, CT: Yale University Press.

- Simon, M. & Houghton, S. (2000). Cognitive biases, risk perception, and venture formation: How individuals decide to start companies. *Journal of Business Venturing*, 15 (2), 113-135.
- Singh, G. & DeNoble, A. (2003). Early retirees as the next generation of entrepreneurs. *Entrepreneurship Theory and Practice*, 27(3), 207-226.
- Ucbasaran, D., Westhead, P., & Wright, M. (2001). The focus of entrepreneurship research: Contextual and process issues. *Entrepreneurship Theory & Practice*, 25(4), 57-80.
- Uzzi, B. (1996). The sources and consequences of embeddedness for the economic performance of organizations: The network effect. *American Sociological Review*, 61: 674-698.
- Vandekerckhove, W. & Dentchev, N.A. (2005). A network perspective on stakeholder management: Facilitating entrepreneurs in the discovery of opportunities. *Journal of Business Ethics*, 60, 221-232.
- Venkataraman, S. (1997). *The distinctive domain of entrepreneurship research: an editor's perspective*. In: *Advances in Entrepreneurship, Firm Emergence, and Growth*. J. Katz, R. Brockhaus (Eds.). Greenwich, CT: JAI Press.
- Walsh J., P. & Charalambides, L., C. (1990). Individual and social origins of belief structure change. *Journal of Social Psychology*, 130, 517-532.
- Walsh, J.P. (1995). Managerial and organizational cognition: Notes from a trip down memory lane. *Organizational Science*, 6(3), 280-321.
- Westhead, P. & Birley, S. (1993). A comparison of new business established by 'novice' and 'habitual' founders in Great Britain. *International Small Business Journal*, 12(1):38.
- Westhead, P. & Wright M. (1998). Novice, portfolio, and serial founders: Are they different? *Journal of Business Venturing*, 13, 173-204.
- Westhead, P., Ucbasaran, D., & Wright, M. (2005). Decisions, actions, and performance: Do novice, serial, and portfolio entrepreneurs differ? *Journal of Small Business Management*, 43(4), 393-417.
- Rodney R. D'Souza** is a PhD candidate at the University of Louisville. His research interests include venture capital finance, new venture teams, and entrepreneurial cognition.
- Bruce H. Kemelgor** is a professor of management at the University of Louisville. His research interests include new venture teams, and human resource management.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.