

Comparative Entrepreneurial Cognitions and Lagging Russian New Venture Formation: A Tale of Two Countries*

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Changes in Russian government and economic systems over the last 15 years led to expectations of increased entrepreneurial activity. Yet potential entrepreneurs are deciding to venture at a much lower rate than anticipated. New venture creation in Russia is occurring at a rate that is considerably lower than that of the United States and Western Europe.

This research examines cognitive similarities and differences among Russian and U.S. entrepreneurs and nonentrepreneurs to find a possible explanation. Multivariate analysis of variance and multiple discriminant analysis results found similarities between U.S. and Russian experts and U.S. and Russian novices with respect to arrangements, willingness, and ability scripts, but differences in these scripts were found between experts and novices, particularly in Russia. Implications for entrepreneurship cognition research and public policy are discussed.

Introduction

Many experts expected Russia's movement from a planned to a market economy to make a positive economic

difference. Instead, economic progress in Russia has lagged, and people are wondering why Western-style entrepreneurship is not helping more. Until recently, per capita and real gross domestic

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product (GDP) (World Bank 2002, 1999), along with manufacturing capacity (Chazen 2005), has steadily declined (McCarthy et al. 2005). Currently observed economic growth is taking place primarily in the natural resource sector, contributing to skepticism concerning Russia's long-term development potential (Ahrend and Tompson 2005). Aging production technology and minimal capital to invest in new technologies have limited productivity improvements (Gurkov 2005; Mugler 2000). These factors combine to slow Russia's economic growth to lower levels than were previously expected, leaving Russians less able to compete in the global marketplace. Policymakers ask, what happened?

During the early 1990s, hope was high for Russian economic progress, built upon the anticipated foundation of privatization and new venture formation. Development of a small to medium-size enterprise (SME) sector was expected to raise the Russian standard of living, create wealth, and increase employment (Dickinson 2004). Yet this sector, which provides an average of 70 percent of GDP in European economies, currently accounts for only 12 percent of Russian GDP (van Stel, Carree, and Thurik 2005; Wennekers et al. 2005; Belton 2000). New-venture creation was expected to take the lead in developing the SME sector, yet Russian entrepreneurial activity rates among the lowest in the world, with 2.5 percent of the workforce establishing new ventures, as compared to 10.5 percent in the United States and 12.0 percent globally (Reynolds et al. 2002).

The lag in Russian new venture development, as compared to similar development in the United States, highlights the need to understand the factors underlying entrepreneurial capability (Stewart et al. 2003; Puffer, McCarthy, and Peterson 2001). Is it the market, the money, or the mind?

Some think that Russian entrepreneurs do not understand the workings of

free markets and are less able to compete than entrepreneurs having more extensive experience in a market economy (McCarthy et al. 2005; Snavey, Miasoedov, and McNeilly 1998; Gibb 1996; Ponomarev and Gribankova 1996; Brenner 1992). According to this point of view, potential entrepreneurs are perceived to be hampered by lack of experience with market-based business, resulting in insufficient maturity in risk-taking and demand-identification skills. Others suggest that the decision to venture is most negatively influenced by the lack of capital and other needed connections (Kuznetsov, McDonald, and Kuznetsova 2000; Organization for Economic Co-operation and Development 2000; Wallace 1996). In this article we explore the third possibility: that of "mind," or entrepreneurial cognitions.

Cognition-based explanations of entrepreneurial activity have recently gained the interest of business and entrepreneurship scholars (e.g., Mitchell et al. 2004; Forbes 1999). Cognition-based constructs have been found to be fruitful in better understanding strategy and performance (Johnson and Hoopes 2003), opportunity recognition (Gaglio 2004), decision-making processes and outcomes (Simon, Houghton, and Aquino 1999; Baron 1998; Busenitz and Barney 1997); and the venture creation decision across cultures and countries (Mitchell et al. 2002, 2000). While there are noncognitive contextual, emotional, or individual factors that affect entrepreneurial behavior and outcomes, the cognition-based perspective is compelling in that it suggests that much of what entrepreneurs do and how well they do it depends on their active knowledge structures: what they know and what they do with that information. We therefore wonder if there are cognition-based explanations for significant variance in observed differences between Russian and U.S. entrepreneurship. If so, what are the policy implications for encouraging Russians to venture?

The purpose of this study is, therefore, to empirically examine the cognitive capabilities of entrepreneurs and nonentrepreneurs in Russia and to compare them with their Western counterparts, using an accepted cognition-based analytical methodology (e.g., Mitchell et al. 2002, 2000; Morse et al. 1999; Mitchell and Seawright 1995), in order to increase understanding of the necessary factors underlying entrepreneurial expertise. In their 2002 article, Mitchell et al. question the extent to which development within a given country is tied to the opportunity identification process. Our analytical comparison of Russia to the United States is suggested as an empirical case study that attempts to address this question. Thus, in this study, a comparison was made among entrepreneurs and nonentrepreneurs from Russia and the United States.

Our argument proceeds according to the following steps. We first present a synopsis of the situation in Russia. Then, we summarize relevant literature on information processing, entrepreneurial cognitions, and cognitive capabilities. We next discuss our research methodology and present the results of the data analysis. Finally, in the concluding section we suggest implications for public policy and entrepreneurial cognition research.

Entrepreneurship in Russia

Krueger (1993) points out that the current situation in Russia stems from decentralization efforts that took place during perestroika. Under perestroika, managerial decisions were handed down to lower levels without market mechanisms in place to guide those decisions. This procedure created a mismatch, and with it, entrepreneurial opportunity. Prices were fixed by central administrators, yet product mix decisions were delegated to lower management levels, with the reward system stressing production

of higher-end products. This led to decreased volumes or elimination of production of lower-end goods. Shortages of these products opened market niches that were not filled by the public sector, creating problems in the economy but opportunities for entrepreneurs (Isakova 1997).

Gimpel'son (1993) suggested that entrepreneurship in Russia is not as new as one might expect, given recent history. He traced three stages of Russian entrepreneurial development through the past three decades. During the first stage, starting in the 1960s and continuing until 1987, an underground private sector began developing to meet market needs not supplied by centrally planned production. From 1987 until 1991, during the short second stage, perestroika allowed partial legalization of private entrepreneurship in certain markets. In the third stage, beginning in 1991 and continuing to today, progress has been made toward full legalization of private entrepreneurship.

Legalization, however, has not paved an easy path for the nascent Russian entrepreneur. Even though new start-up ventures have been shown to be more efficient contributors to economic development in Russia than either state-owned enterprises or privatized firms (Johnson and Loveman 1995), entrepreneurs have encountered economic, political, and cultural difficulties in their efforts to strengthen a fledgling SME sector in the transition economy.

Several generations of the Soviet system promoted the value of large enterprises. Marxism-Leninism tended to view the nation of the USSR as one immense corporation (Aslund 2002). This attitude of "bigger is better" has decreased the perceived value of SMEs as an important element of economic growth. The lack of essential economic infrastructures, such as legal and banking systems, has also been credited with contributing to the SME sector's

inability to play a major role in the Russian economic transition (McFaul, Petrov, and Ryabov 2004).

Political realities have also been seen as nonsupportive of SME growth. A considerable segment of President Putin's political capital stems from large Russian conglomerates—known as the Oligarchs—whose interests are best served through curtailed SME-sector expansion (Shevtsova 2003). Additionally, unstable tax rates (Aslund 2002) and large, unofficial yet essential payments to government and criminal gatekeepers (Johnson, McMillan, and Woodruff 2000) appear to discourage the emergence of new business ventures.

Decades of established cultural norms and values have created negative impressions of entrepreneurs. The lack of legal and market infrastructures encourages self-serving business behaviors, supporting the image of entrepreneurs as unfair, dishonest, and immoral (Kuznetsov and Kuznetsova 2005). Modern entrepreneurial culture and widespread acceptance of entrepreneurship have been slow to develop in Russia during the economic and political transition. These perspectives result from both a holdover attitude from the communist days as well as the current influence of organized crime.

Despite these limitations, reports suggest that the SME sector, dominated by entrepreneurial businesses, contributes from 10 percent (Shevtsova 2003, p. 288, n2) to 20 percent (Aslund 2002, p. 286) of the Russian GDP. Entrepreneurship has not supplied the economic growth that was anticipated following the dissolution of the Soviet Union; but there is visible success among some Russian entrepreneurs.

It is important, however, to note that entrepreneurial development has not consistently expanded across the vast nation of Russia. During the past decade, advances in business privatization and international trade have centered in Russia's two largest cities: Moscow and

St. Petersburg (Zashev 2004; Russian Ministry of Economic Development and Trade 2003). Growth and maturation in new venture enterprises are also more prominent in these Russian commercial centers (Kihlgren 2003). The disparity in new venture creation and small-business growth in different regions of this extensive country highlights the need to emphasize examination of entrepreneurs in the major cities of European Russia, where entrepreneurial progress has occurred concurrently with efforts toward privatization of state-owned enterprises.

When compared to other types of privatization efforts, new venture formation appears to be key to productivity, quality, and competitiveness improvement in the Russian economy (World Bank 1999; Ermakov 1996; Weisskopf 1994). For example, entrepreneurship eliminates many problems found in the privatization of state-owned enterprises because the venturer is motivated to operate efficiently and effectively in order to competitively fill the identified market need (Aslund 2002). Unlike the privatization of existing operations, new venture formation does not threaten to cause unemployment; in fact, it creates meaningful employment with higher income potential than can be available in inefficient operations struggling to marketize. However, an open question remains: do potential entrepreneurs from Russia's previously planned economy have the cognitive foundation needed to move forward and to choose to participate in free-enterprise venturing? This question leads us to apply an expertise-based approach to conducting this research.

Social Cognition and Expertise

Cognitions comprise all processes by which sensory input is transformed, reduced, elaborated, stored, recovered, and used (e.g., Neisser 1967). They also

involve thoughts about “a comprehensive reality that consists of knowledge and its manner of use by a person in a given situation” (Fiske and Taylor 1984). Repeated cognitions are organized within long-term memory as scripts, or action-based knowledge structures (e.g., Lord and Maher 1990). Thus, scripts possess the characteristics of being highly developed, sequentially ordered information in a specific field that is utilized according to discipline-specific norms or processes (Read 1987; Glaser 1984). Scripts are more than simply knowledge, because they invoke and guide procedural and normative processes. The discovery of knowledge structures as a phenomenon in social/cognitive psychology forms the foundation of the expert information processing branch of social cognition research (Lord and Maher 1990) and explains why experts and novices are expected to differ on more than just knowledge, but also in how to use it.

The study of expertise by information processing theorists has been undertaken mainly in the development of artificial intelligence, specifically in the development of expert systems (Galambos, Abelson, and Black 1986). Much has been learned about the abilities of individuals who attain expertise in particular domains that can now be used to assess expertise within groups of experts, and between groups of experts and groups of novices. Specifically, experts have been shown to have knowledge structures about a particular domain, while novices do not (Lord and Maher 1990; Read 1987; Galambos 1986; Glaser 1984). These knowledge structures explain the remarkable performance of experts in a field (Charness, Krampe, and Mayr 1996; Ericsson and Charness 1994; Abelson and Black 1986).

New Venture Expertise

New venture formation expertise is the extent to which an individual's

expert script (or active knowledge structure) is sufficiently developed to enable him or her to successfully start-up and sustain a new venture (Mitchell 1994; Bull and Willard 1993). Recent research has shown that individual entrepreneurs, regardless of culture or geographical location, share common experiences during the conceptualization, start-up, and growth of ventures, and therefore share a similar script for new venture formation (Mitchell et al. 2002, 2000). Individuals who have started and continue to operate a business that is at least two years old—or have started at least three new ventures, at least one of which was successful—are thought to possess some meaningful level of new venture formation expertise (Mitchell 1994).

Leddo and Abelson (1986) found evidence in a series of experiments that novices fail because they cannot determine which cues are important and which are not important. Consequently, they cannot enter and enact an appropriate script. Experts, having deeper knowledge, skills, experiences, and acumen are able to access more highly developed arrangements, willingness, and ability scripts, which are necessary to achieve high levels of performance. Drawing on Leddo and Abelson's (1986) work, Mitchell (1994) proposed that entrepreneurial expertise requires sufficiently developed arrangements, willingness, and ability scripts.

Arrangements Scripts

Venture arrangements scripts are the active knowledge structures individuals have about the use of contacts, relationships, resources, assets, and other specific arrangements necessary to form a new venture (Mitchell et al. 2000). Having possession of or access to specific arrangements is thought to indicate underlying expert arrangements cognitions, but the possession or access per se is not the script (Mitchell et al. 2000).

At least four types of arrangements are evident in the entrepreneurship literature:

- (1) *Idea protection*: accomplished when patents, copyright, franchise agreements, contracts, and other isolating arrangements that serve to prevent imitation are made (Rumelt 1987);
- (2) *Having resources*: the extent to which a prospective venturer controls financial and human capital and other business assets and resources necessary for new venture formation (Vesper 1996);
- (3) *Access to resources*: the extent to which a prospective venturer has the contacts and other access to needed resources (Vesper 1996); and
- (4) *Venture specific skills*: the extent to which the prospective venturer has capabilities that serve to provide sustainable competitive advantage for a new venture (Herron and Robinson 1993; Cooper and Dunkelberg 1987).

We thus define arrangement scripts as the active knowledge structures concerned with the importance, acquisition, and use of these arrangements.

Willingness Scripts

Venture willingness scripts are concerned with commitment to venturing and receptivity to the idea of starting a venture. New venture formation requires venture willingness, which includes at least three dimensions:

- (1) *Seeking focus*: an openness, orientation, and drive to seek out new situations and possibilities and to try new things (Krueger and Brazeal 1994; Krueger and Dickson 1993);
- (2) *Commitment tolerance*: a willingness to “put your money where your mouth is” and assume the risk and responsibility of a new venture (Ghemawat 1991); and

- (3) *Motivation*: an attitude concerned with “getting on with the task,” and the belief that missing an opportunity is worse than trying and failing (Sexton and Bowman 1985; McClelland 1968).

We define venture willingness scripts as the active knowledge structures concerned with seeking focus, commitment tolerance, and motivation.

Ability Scripts

Venturing ability scripts are concerned with the possession and masterful deployment of the capabilities, skills, knowledge, norms, and attitudes required to be successful in new venture development (Vesper 1996). At least four cognitive dimensions of venturing ability appear in the entrepreneurship literature:

- (1) *Venture experience*: the extent to which an individual has been directly involved in the start-up and running of a new venture (Stuart and Abetti 1990; Vesper 1996);
- (2) *Venturing diagnostic ability*: the ability to assess the condition and potential of ventures and understand the systematic elements involved in new venture creation (Boyd and Vozikis 1994; Krueger and Carsrud 1993; Bird 1989);
- (3) *Venture situational knowledge*: the ability to draw on lessons learned in a variety of ventures and apply those lessons to a specific situation (Vesper 1996); and
- (4) *Opportunity recognition capability*: the ability to see ways in which both customer and venture value can be created in new combinations of people, materials, or products (Kirzner 1982; Glade 1967).

We define venture ability scripts as the active knowledge structures concerned with venture experience, ventur-

ing diagnostic ability, venture situational knowledge, and opportunity recognition capability.

Based upon the foregoing theory, the empirical questions to be investigated in this study are as follows:

- (1) Are there differences in arrangements, willingness, and ability cognitions among Russian and U.S. entrepreneurs and nonentrepreneurs?
- (2) If differences are found, what are those differences?

Methodology

This ex post facto study is based on data collected using the survey methods reported in this section. The methodology we used to conduct this study is reported in the following three sections: (1) data collection; (2) measurement; and (3) data analysis.

Data Collection

Data ($n = 224$) were gathered from 148 respondents in the western United States and 76 respondents from the St. Petersburg area in Russia. All survey respondents had at least some business experience or training. Given the difficulty of accessing sampling frames for probability samples in social science research (Pedhazur and Schmelkin 1991) and in international entrepreneurship research (McDougall and Oviatt 1997, p. 303), we used a purposeful sampling approach. This approach relied upon the combined judgment of the research team and local assistants as survey respondents of various industries, education levels, ages, and backgrounds in business experience were selected. Potential respondents were identified through local chambers of commerce, small business development centers, and local business schools. The respondents in this study were business owners, entrepreneurs, midlevel employees from both public and private sectors; in the United

States, some of the respondents were business students (individuals age 22 or older, with work experience).

Local assistants personally administered a pretested, self-administered, structured survey to participants. Because only a small number of potential respondents refused to participate, the response rate was in excess of 95 percent.

Survey translation to Russian was carefully managed. A native Russian speaker that was fluent in English translated the survey instrument into Russian. One of the authors worked closely with this native assistant, talking through the meaning of each question to increase the likelihood that appropriate meaning would be communicated. The survey was then back-translated by a native English speaker who was fluent in Russian. Both translators met with one of the researchers to reconcile discrepancies. However, even with the care taken in double-translation of the survey, it is still limited, as it is founded upon theory and methods derived from predominantly Western journals (Hofstede 1994).

The sample in this study is drawn from two populations: practicing entrepreneurs (new venture formation experts), and nonentrepreneurs (novices), as shown in Table 1.

Measurement

Measurement of the variables used in this study was accomplished as follows.

Expertise. Consistent with our conceptualization of entrepreneurial expertise, respondents were asked to report their level of entrepreneurial experience in three categorically scaled choices adopted from a study by Morse et al. (1999). Respondents were classified as new venture formation experts if they had *either* (1) started a business that has been in existence for more than two years; (2) started three or more businesses, at least one of which is currently

Table 1
Description of Sample

Groups	U.S. Experts	U.S. Novices	Russian Experts	Russian Novices
Group totals	54	94	55	21
Percent of sample	24.1	42.0	24.6	9.4
Male	45	61	38	10
Female	9	33	17	11
Mean age	44	29	37	35
Years education	15.3	14.9	15.7	14.9

successful; or (3) had substantial experience in funding or investing in new ventures.

Cognitions. Arrangements, willingness, and ability cognitions were measured using the script-cue recognition approach and items adopted from Mitchell et al. (2000). These items are documented in the Appendix. The script-cue recognition measurement method presents the respondent with a set of dichotomous statements: one is a statement that an expert would recognize as being true and the other is a distracter statement that is commonly thought to be true (by nonexperts) but is not (Read 1987). The statements themselves are not the scripts (cognitions), but they are thought to indicate the existence of the underlying scripts (Mitchell et al. 2000). That is, what someone “knows” or “has” at a point in time is evidence of “what” and “how” they have been thinking. The script-cues are, therefore, formative indicators of the underlying cognitive constructs: each item helps to define the meaning of the construct, but they are independent components of the constructs and are, therefore, not expected to be highly correlated. As argued by Mitchell et al. (2000), based on a study by Howell (1987, p. 121), it is consequently inappropriate to expect unidi-

mensionality at the construct level, and it is inappropriate to assess reliability at the item level with Cronbach’s alpha, which is based on interitem correlation. Following Mitchell et al. (2000), we used confirmatory principal components factor analysis to confirm the conceptualized dimensions of the cognitive script constructs and found item loadings similar to those found by Mitchell et al. (2000). These findings suggest that the measures were sufficiently valid to be useful in examining the research questions. The items were summed to create subconstructs and then summed again to create measures of arrangements, willingness, and ability scripts.

Data Analysis

The research questions call for an examination of differences among U.S. and Russian entrepreneurs and nonentrepreneurs. Differences among these four groups were examined two ways: (1) multivariate analysis of variance (MANOVA); and (2) multiple discriminant analysis (MDA). The MANOVA examined differences among the higher order constructs of arrangements, willingness, and ability cognitions. The discriminant analysis examined which of the subconstructs best differentiated the four groups.

Results

In response to research question 1, as evidenced by a significant multivariate F statistic (Table 2), significant differences were found in the cognitions of Russian and U.S. entrepreneurs and nonentrepreneurs. Significant differences were found for all three cognition constructs (univariate F, Table 2, $p = .0000$), indicating differences among at least two of the groups, for all three types of scripts. And in answer to research question 2, post hoc tests found that (1) U.S. experts have higher arrangements, willingness, and ability scripts than either U.S. or Russian novices; (2) Russian experts have higher arrangements scripts than Russian novices, but not significantly higher willingness or ability scripts. Russian experts may also have higher arrangements scripts than U.S. novices ($p = .051$), but this result requires further investigation because our finding approached significance only at the .05 level; (3) U.S. experts do not have significantly higher arrangements, willingness, or ability scripts than Russian experts (although the mean scores are higher, this result may be a statistical power issue); and (4) U.S. novices have significantly lower ability scripts than Russian novices but not significantly different willingness or arrangements scripts.

To begin to understand which arrangements, willingness, and ability scripts were driving these observed differences, we used multiple discriminant analysis, with the four expertise groups as the dependent variable and the eleven script subconstructs as the independent variables. The discriminant analysis, presented in Table 3, found three significant discriminant functions, the first two of which accounted for 90 percent of the discriminating power. When we interpreted the significant function loadings, we found that the first function (which had 53 percent of the discriminating power) is highly aligned with the ability

script of venture situational knowledge. The second function is highly aligned with the arrangements script of resource access and the willingness script of seeking focus. The third function is highly aligned with the arrangements script of resource possession and the willingness script of opportunity motivation. The group centroids (Table 3) indicate that (lower) venture situational knowledge script differentiates U.S. novices from the other groups; that (higher) resource access scripts and seeking focus scripts differentiate U.S. experts from the other groups, and from Russian novices in particular; and (higher) resource possession scripts and opportunity motivation scripts differentiate Russian experts from the other groups.

Discussion

In this study we use an information-processing theory-based approach to represent and analyze entrepreneurial cognitions operating in two distinct socioeconomic settings, Russia and the United States. Our findings of similarities and differences among Russian and U.S. experts and novices with respect to Arrangements, Willingness, and Opportunity scripts informs our guiding research question: What explains unexpectedly low levels of entrepreneurship in the emerging market economy of Russia? Our results suggest that in addition to markets and money, "mind," or cognitions, need to be considered as a plausible explanation—both in itself and in relation to markets and money. This is reflected in the suggestion of the internationally renowned economist, Hernando De Soto (2000):

One of the greatest challenges to the human mind is to comprehend and to gain access to those things we know exist but cannot see. Not everything that is real and useful is tangible and visible. . . . Throughout history, human

Table 2
Results of Multivariate Analysis of Variance (MANOVA) Tests

Multivariate	Univariate	N	Mean	Significance: Post-Hoc Tests				
				F	U.S. Expert	U.S. Novice	RUS Expert	RUS Novice
Arrangements Scripts	0.000	54	3.8		0.002		0.284	0.005
		94	3.0	U.S. Expert	0.002		0.051	0.433
		55	3.5	U.S. Novice	0.284	0.051		0.043
		21	2.7	RUS Expert	0.005	0.433	0.043	
Willingness Scripts	0.000	54	5.5	U.S. Expert	0.000		0.118	0.019
		94	3.9	U.S. Novice	0.000		0.570	0.570
		55	4.8	RUS Expert	0.118	0.009	0.009	0.230
		21	4.2	RUS Novice	0.019	0.570	0.230	
Ability Scripts	0.000	54	5.4	U.S. Expert	0.000		0.728	0.439
		94	3.5	U.S. Novice	0.000		0.000	0.003
		55	5.2	RUS Expert	0.728	0.000	0.000	0.605
		21	5.0	RUS Novice	0.439	0.003	0.605	

Bold, Significant at the $p < .05$ level.

Table 3
Discriminant Analysis

	Discriminant Function 1	Discriminant Function 2	Discriminant Function 3
Eigen Value	0.290	0.205	0.053
Significance level ($p <$)	0.000	0.000	0.010
Percent of Total	52.9	37.4	9.7
Discriminating Power			
Cumulative Percent of	52.9	90.3	100
Discriminating Power			
Significant Function Loadings			
Arrangements Scripts:			
Resource Access	-0.146	0.627	0.335
Resource Possession	0.448	0.452	0.665
Willingness Scripts:			
Seeking Focus	0.452	0.510	-0.128
Opportunity Motivation	0.213	-0.293	0.613
Ability Scripts:			
Venture Situational	0.619	-0.332	-0.291
Knowledge			
Functions at Group Centroids			
U.S. Expert	0.409	0.684	-0.112
U.S. Novice	-0.622	-0.001	0.003
Russian Expert	0.545	-0.354	0.271
Russian Novice	0.308	-0.785	-0.572

Bold, Primary function loadings.

beings have invented representational systems—writing, musical notation, double-entry book-keeping—to grasp with the mind what human hands could never touch. (p. 7)

With that in mind we discuss the entrepreneurial cognition research and public policy implications of our results and conclude with directions for future research.

Implications for Entrepreneurial Cognition Research

The entrepreneurial cognition research stream has developed to assist

scholars in effectively conceptualizing relationships concerning the thinking and individual decision-making involved in entrepreneurship. We have utilized concepts from this research stream to compare and contrast entrepreneurial cognitions in both the United States and Russia. Over the past decade, the entrepreneurial cognition literature has seen substantial development, especially in the focal area of this article: the examination of cognitions relating to differences between entrepreneurs and nonentrepreneurs in entrepreneurial decision-making. Within the larger field of entrepreneurial cognitions, explanations for such differences include both

the approach we have taken—utilizing the entrepreneurial information processing-based expertise approach (e.g., Mitchell et al. 2002, 2000)—and the approach we have not taken—examining the influence of entrepreneurial biases (Simon, Houghton, and Aquino 2000; Baron 1998; Busenitz and Barney 1997). Fortuitously, each explanation stream benefits from the results observed in our study.

The Entrepreneurial Expertise Approach.

The development of research that uses expert information processing theory to examine differences in decision-making between entrepreneurs and nonentrepreneurs traces its roots to the idea that because entrepreneurs have developed unique knowledge structures, they process information differently. Entrepreneurs transform, store, recover, and use information (Neisser 1967) in ways that nonentrepreneurs do not (e.g., Mitchell et al. 2000; Mitchell 1994).

Thus, according to expert information processing theory, entrepreneurs belong to a group of experts in the entrepreneurial domain who possess entrepreneurial cognitions: scripts or knowledge structures that enable them to use information significantly better than nonexperts or nonentrepreneurs (two standard deviations above the mean in the population at large), who do not have and do not use such structured knowledge (Mitchell et al. 2000; Ericsson, Krampe, and Tesch-Romer 1993; Lord and Maher 1990; Read 1987; Leddo and Abelson 1986; Glaser 1984). Empirically, there has been mounting evidence (e.g., Mitchell et al. 2002, 2000; Morse et al. 1999) to support the assertion that in entrepreneurship, cognitions in the form of scripts are related to decision-making; specifically, to the venture creation decision (Busenitz and Lau 1996; Mitchell 1994). The comparative marketplace setting of our study broadens this stream of research with the suggestion that not

only are the cognitions related to decision-making, but, as suggested by McGrath and MacMillan (2000), they may implicate a more comprehensive entrepreneurial mindset, or a global culture of entrepreneurship (Mitchell et al. 2002). This is suggested by our finding a lack of differences, power issues notwithstanding, between U.S. and Russian experts and U.S. and Russian novices.

The Entrepreneurial Biases Approach.

The development of research that examines the topic of entrepreneurial biases traces its roots to the suggestion that people are limitedly rational decision-makers, with the limitation emanating, in part, from the human tendency to rely on heuristic principles in decision-making (Simon 1955). While they are useful, such simplifying heuristics can also introduce systematic bias into decision-making (Kahneman 2003; Tversky and Kahneman 1974). Thus, cognitive biases have been defined to be subjective or predisposed beliefs with origins in specific heuristics (Simon and Houghton 2002; Bazerman 1998; Busenitz and Lau 1996).

Initial positive findings (Simon, Houghton, and Aquino 2000; Busenitz 1999; Busenitz and Barney 1997) regarding decision-making differences between entrepreneurs and nonentrepreneurs have prompted further development (e.g., Miner and Raju 2004). One line of ongoing inquiry proposes that entrepreneurs may regularly find themselves in situations that tend to maximize the potential impact of various biases and errors (Baron 1998, p. 278), and that not only do entrepreneurs decide to engage in entrepreneurship because of greater susceptibility to certain biases (e.g., optimistic bias, affect infusion, planning fallacy, and illusion of control) but also they succeed because of reduced susceptibility to certain other cognitive biases (e.g., avoidance of sunk costs) (Baron 2004, p. 237).

Our study provides a likely setting whereby the biases and heuristics approach might be utilized to explain even more variance; but perhaps—as we have observed in the case of information processing-based cognitions—in an unanticipated manner. We wonder whether there are other circumstances in which entrepreneurs may find themselves (such as attempting entrepreneurship within an emergent market economy within which unofficial transacting was historically essential for getting along) that might tend to alter the potential impact of various biases and errors. McGrath (1999) suggests that these unique circumstances may affect such constructs as an antifailure bias.

More specifically, we observe that although Russian novices do not significantly differ from Russian experts in overall willingness scripts in our MANOVA results (which may be a statistical power issue due to the small sample of Russian novices), our MDA results suggest that Russian novices may be less motivated than Russian experts to seek opportunities, being low in seeking focus (in discriminant function 2) and opportunity motivation (in discriminant function 3). Further research is needed to understand why this might be the case. Traditional explanations involve perceived risk (Knight 1921), such as expropriation or personal safety, or self-efficacy (Gist and Mitchell 1992). Transaction cognition entrepreneurship theory (e.g., Mitchell 2003, 2001) suggests another explanation: countervailing cognitions concerned with dependency may play a role. Russian novices may be less willing to engage in entrepreneurship because of beliefs about the role of others, such as the state, in providing for their welfare. The existence and effects of countervailing cognitions (which also include fatalism and refusal thinking) are only just beginning to be empirically investigated (e.g., Smith, Mitchell, and Pritchard 2006). However if they are

playing the role that theory suggests, then institutional entrepreneurship-based interventions (Maguire, Hardy, and Lawrence 2004; Garud, Jain, and Kumaraswamy 2002) would be indicated, where meaning, myth, and ceremony (Meyer and Rowan 1977) are refocused toward a national stance that is more culturally supportive of entrepreneurial cognitions.

Policy Implications

Because this is an exploratory study, rooted in one of the two major metropolitan entrepreneurial settings in Russia, the vantage point from which we seek to develop policy implications must necessarily rely upon research mechanisms that support assertions of external validity in this relatively specialized case. We therefore appeal to the notion of “manifest and latent function” (Merton 1957), whereby observations of objective consequences that researchers see to be manifest within a specified social unit can contribute to our understanding of the latent, or unrecognized, consequences that are of the same order (pp. 60–69). It is in this sense that we seek to interpret the results of our study as they apply to public policy. Because cognitions are not directly observable (Posner 1973) but are of the order of things that “we know exist but cannot see” (De Soto 2000, p. 7), we feel justified offering a few of the public policy assertions that appear to follow from our finding differences among our representations of the intangible but real cognitions-in-use within the groups studied.

Our results suggest that a lower relative level of entrepreneurship in Russia does not appear to result from a lack of understanding of opportunities in a market-based economy. However, our MANOVA results do suggest “mind”-based implications that are *tied* to money: Russian novices have lower arrangements scripts than Russian experts. Additionally, our discriminant

results suggest that Russian novices have less-developed cognitions relating to resource access (part of discriminant function 2) and resource possession (part of discriminant function 3) than Russian experts. Although our study is focused on the cognitions (scripts) associated with key arrangements, these results are consistent with the perspective that the decision to venture is most negatively influenced by the lack of capital and other needed connections (Kuznetsov, McDonald, and Kuznetsova 2000; Organization for Economic Co-operation and Development 2000; Wallace 1996). From a public policy perspective, this suggests that to develop more Russian experts, novices need cognitions leading to access to or control of resources and concerning what to do with those resources.

However these “mind”-based implications appear to be quite tightly bounded. For example, the assumption that Russian entrepreneurship suffers due to individuals’ inability to recognize and protect opportunities is called into question by our results. In our MDA analysis, ability scripts relating to opportunity recognition and arrangements scripts relating to idea protection were not found to have discriminating power. Similarly, U.S. and Russian experts were found not to significantly differ with respect to arrangements, willingness, and ability scripts; but venture situational knowledge was a key differentiating factor. Russian experts appear to have the most highly developed specialized knowledge scripts, as suggested by the understanding that venture creation requires specialized knowledge, that venture creation follows a “script” and has commonalties irrespective of situation, and that there are success principles in venture creation. Interestingly, U.S. novices are least likely to have developed these cognitions.

This result is consistent with the “transaction” perspective of entrepreneurship offered by Mitchell (2003, 2001), who

views entrepreneurship as the creation of value through the creation of new transactions, not necessarily through ventures. It appears to us from the entrepreneurial cognition-based structure manifest in our study that the Russian people represented within our research setting, even those who had not started ventures, may nevertheless (due to a latent structure developed over decades of coping with the unique challenges of living within a command economic system) have a lot of experience in transacting (making deals or exchanges). This may have allowed them to develop a higher baseline of the situational knowledge needed to be successful in venturing than their U.S. counterparts. This result, when combined with the finding that Russian novices do not significantly differ from Russian experts or U.S. experts in overall ability scripts, suggests that Russian novices possess an unusually high acuity for the recognition and preservation of entrepreneurial opportunities. This has a public policy implication in that, starting with this higher baseline, formal entrepreneurial education that connects opportunity identification to the entrepreneurial process (Mitchell 2005; Shane and Venkataraman 2000) could and should make a significant impact on venture creation in Russia. The knowledge learned on the streets may therefore be an important, but hidden (latent) asset that needs but to be fine-tuned and adapted to the venture context for major improvements to be more possible in Russian metropolitan area entrepreneurship—and perhaps beyond, to the extent that the same latent structure exists elsewhere within the country.

What do our results suggest for international public policy? We wonder whether, given our findings, foreign aid and investments can be more targeted toward the arrangements skills of potential entrepreneurs. Much of the funding sent through existing aid channels does virtually nothing for the individual new venture creator (Aslund 1997). We there-

fore suggest that venture funding should be channeled (or continue to be channeled) (1) into foreign direct investment (partnerships, joint ventures, etc.); (2) into the institutions that enable arrangements for venturing; and (3) into specific education and training designed to build the knowledge base necessary for the formation of the institutions required to make new ventures possible.

While our findings do not directly implicate the marketization process, we nevertheless consider it to be somewhat self-evident that to the extent that the market itself is strengthened, the possibilities for entrepreneurship will also be strengthened, because the entrepreneurial cognitions that we have tapped into through our representation of the “mind”-based factors in entrepreneurial development grow from market-system notions. It is well accepted that much of the solution to economic problems lies in “enhancing the effectiveness of competition, especially markets where it [competition] is now weak; and whether we like it or not, that task rests ultimately in the hands of government” (Thompson 1989, p. 1). Efforts that therefore build domestic political stability, currency solidity, and legal consistency are essential to attracting foreign capital as well as building the arrangements abilities of potential entrepreneurs. Domestic and foreign policies should support these efforts. Policies that encourage the establishment and expansion of institutions and infrastructures that extend arrangement-building capacity are therefore, in our view, vital to Russian entrepreneurial development.

Limitations

We have reported the results of this study, which explores entrepreneurial cognition differences and their composition, by comparing venturing experts and novices in both Russia and the United States. We believe that the results we report, which essentially extend and

confirm the theory, are due to the strength of that theory (good theory leading to good results). The results, while strong, are nevertheless limited by the research decisions we have taken, and which we fully acknowledge come packaged with attendant limitations.

As discussed further, the limitations of this study relate primarily to (1) measurement; (2) context; and (3) generalizability.

Measurement. In our research we are trying to compare individual cognitions—phenomena that are not directly observable—whose inability to be directly observed has stimulated the variety of approaches which have emerged to address this unavoidable condition (Posner 1973). We acknowledge that our script-cue recognition approach may not fully capture the full range of cognitions or tap into the many other dimensions that might further apprehend what is really going on in the minds of respondents (because this measurement method relies upon formative versus reflective indicators). However, in using an accepted measurement technique (Mitchell et al. 2002, 2000) that we have tightly bounded in definition and operation, we believe that we have taken a reasonable approach. Because this approach has been fruitful in other well-respected research, we have not considered the challenges that attach to measurement methods of individual cognitions to unreasonably impact our capability to fruitfully examine the research questions addressed in this study.

Context. The research context, broadly framed, presents an almost overwhelming set of challenges. As previously noted, the economic, political, and cultural environments in Russia are generally hostile to entrepreneurship. These conditions have consequences in terms of new venture creation in Russia that are not mirrored in the U.S. business

environment (Kuznetsov and Kuznetsova 2005).

The context issue of entrepreneurship and criminality perhaps bleeding together in the minds of Russian respondents does not concern us unduly. We believe that the script-cue recognition method of measurement taps into responses at a much more fine-grained level and does not trigger the more coarse-grained, label-based opinions associated with this potential terminology confusion.

Generalizability and External Validity.

The generalizability of this study is limited by the relatively early stage of development in theory and measures, and by the reduction in statistical power through the use of categorical variables in the MANOVA analysis. Further, because of the cross-sectional nature of the study, the testing of causal links between the cognitive script variables and more specific outcomes, such as the venture-creation decision itself, was not possible. We therefore limited our assertions to entrepreneurial capabilities, as represented by entrepreneurial expertise. Finally, although we believe that our findings provide a foundation for further examination of the content and structure of new venture expert scripts, a detailed examination and interpretation of differences (e.g., at the country and subscale level) is an ongoing enterprise.

Notwithstanding these limitations and qualifications, we do believe that we have gathered and analyzed primary data from a theoretically interesting set of respondents. Through the utilization of an accepted theoretical frame, this data analysis has been able to shed light on the research questions posed at the beginning of this study.

Conclusion

How can entrepreneurship in Russia fulfill its expected promise to make a positive economic difference? De Soto

(2000, p. 7) suggests that certain “invisible yet real” processes present in the West, which convert the “invisible to the visible,” explain why “Western nations can create capital and the Third World and former communist nations cannot.” We have attempted in this study to take a definite step toward the representation of crucial elements in venturing—entrepreneurial cognitions—and have tested these representations in the field through comparative analysis. We are hopeful that our empirical examination and comparison of the cognitive capabilities of entrepreneurs and nonentrepreneurs in Russia with their Western counterparts, using an accepted cognition-based analytical methodology, adds significant progress toward representing key cognition-based entrepreneurial capabilities in a manner that makes their effects visible and thereby more manageable.

Further work on entrepreneurial cognition is required, however, to more fully understand entrepreneurial expertise and to design interventions that develop or enhance that expertise around the world. Key research questions that need to be explored include the following:

- What cognitions define or are associated with entrepreneurial expertise?
- What knowledge, acumen, decision processes, behaviors, and/or norms differentiate expert entrepreneurs from nonexperts?
- What knowledge, acumen, decision processes, behaviors, and/or norms are more (or less) important for entrepreneurial success in different contexts?
- How important are entrepreneurial cognitions relative to other explanations of entrepreneurial performance?
- What are more (or less) effective ways to develop expert entrepreneurial cognitions?

- What factors facilitate or inhibit the development of entrepreneurial expertise?

Answers to these and related questions will help raise the economic prosperity of individuals, regions, and nations. Progress is being made on new theory, concepts, methods, and measures that are necessary to pursue this cause. We encourage others in this pursuit.

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Appendix: Script Cue Items That Comprise the Expertise Measurement Scales

This questionnaire helps you to identify your personal approach to getting involved with a new business. Please CIRCLE THE LETTER (a) or (b) TO SHOW THE ANSWER THAT DESCRIBES YOU MOST CLOSELY. (Note: As indicated by the variable number, items were not arranged in this order in the actual questionnaire.)

Arrangements Construct

R1: Protectable Idea

14. My new venture is/will be:
- (a) protected from competition by patent, secret technology, or knowledge.
 - (b) based on a product or service with no "barriers to entry."
35. My new venture is/will be:
- (a) protected from competition by franchise or other territory restrictions.
 - (b) based on a product or service which may experience a lot of competition within a territory.

R2: Resource Access

36. I could:
- (a) raise money for a venture if I didn't have enough.
 - (b) provide an investor with a lot of very good ideas for a new venture.

45. I:
- (a) can often see opportunities for my plans to fit with those of other people.
 - (b) rarely find that results match what I expect.

R3: Resource Possession

18. I presently:
- (a) control acquisition or expansion funds in an ongoing business, or have my own funds available for venturing.
 - (b) will need to raise financing for my venture from third parties.
20. In the last three years:
- (a) the size of the pool of people and assets I control has grown.
 - (b) I have not extended my business control over people or assets.

R4: Venture Specific Skills

47. I am very:
- (a) good at a specialty that is in high demand.
 - (b) well-rounded, with broad expertise in a variety of areas.

Willingness Construct

W1: Seeking Focus

33. Would you say you are more:
- (a) action oriented.
 - (b) accuracy oriented.
37. Do you want things:
- (a) open to the possibilities.
 - (b) settled and decided.
38. I have:
- (a) enormous drive.
 - (b) high respect for service, generosity, and harmony.
41. Are you more comfortable in:
- (a) new situations.
 - (b) familiar territory.

W2: Commitment Tolerance

28. If you had additional money to put to work, would you put it into a venture:
- (a) where you have a "say," even if there is no track record.
 - (b) managed by those you trust, who have a proven track record.
31. I don't mind:
- (a) being committed to meet a regular payroll if it means that I can have a chance at greater financial success.
 - (b) giving a little of the value I create to the company that hired me.
32. I am looking for a:
- (a) place to invest my resources.
 - (b) better way to manage my resources.

W3: Opportunity Motivation

7. When investing in a new venture, I think it is worse to:
- (a) wait too long, and miss a great opportunity
 - (b) plunge in without enough information to know the real risks

12. Is it worse to:
 - (a) waste your time thinking over an opportunity.
 - (b) commit time and money to a cause that may not succeed.

Venture Ability Construct

A1: Ability/Opportunity Fit

4. If asked to give my time to a new business, I would decide based on how this venture fits:
 - (a) into my past experience.
 - (b) my values.
42. I feel more confident:
 - (a) that I know a lot about creating new ventures.
 - (b) in my overall business sense.
44. When I see a business opportunity I decide to invest based upon:
 - (a) how closely it fits my “success scenario.”
 - (b) whether I sense that it is a good investment.

A2: Venturing Diagnostic Ability

9. When confronted with a new venture problem I can:
 - (a) recall quite vividly the details of similar situations I know about.
 - (b) usually figure out what to do, even if it is by trial and error.
27. I am more:
 - (a) aware of many new venture situations, some which succeeded, and others which failed, and why.
 - (b) familiar with my own affairs, but keep up on business in general.

A3: Venture Situational Knowledge

16. It is more important to know about:
 - (a) creating new ventures.
 - (b) business in general—staying diversified.
29. New venture success:
 - (a) follows a particular script.
 - (b) depends heavily on the pluses and minuses in a given situation.

A4: Opportunity Recognition

11. When someone describes a problem with a new business I:
 - (a) recognize key features of the problem quickly, and can suggest alternatives from examples I can cite.
 - (b) use my instincts to suggest questions which should be asked to solve the problem.
40. The new venture stories I recall:
 - (a) illustrate principles necessary for success.
 - (b) are a telling commentary on the foibles of human nature which can rarely be predicted.
48. I often:
 - (a) see ways in which a new combination of people, materials, or products can be of value.
 - (b) find differences between how I see situations and others’ perspectives.

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