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THE IMPLICATIONS OF MULTIPLE CULTURES AND ENTREPRENEURIAL
EXPERTISE FOR INTERNATIONAL PUBLIC POLICY

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ABSTRACT

In this study, the expertise levels of expert v. novice entrepreneurs in Mexico and Russia are compared to those in the U.S. Responses to a questionnaire designed to measure new venture formation expertise are analyzed using LISREL to construct the measurement model, and multiple discriminant analysis to test for hypothesized differences. When the centroids (means) of the six groups are plotted as ordered pairs (coordinates) for each centroid, and the separation of groups is visualized using isodensity ellipses (circles), the plot shows that although the groups are appreciably overlapped, the means are significantly different for the LISREL-based new venture expertise components across groups, providing both intuitive and counter-intuitive insights and implications for public policy.

INTRODUCTION

Two important issues: (1) the continual requests from Russia for massive amounts of aid for "marketization," and (2) the implementation of the North American Free Trade Agreement (NAFTA), provide a timely opportunity for comparing entrepreneurship within and across Mexican, Russian, and U.S. economies. For example, it would be very useful for policy makers to be able to somehow "calibrate" the levels of new venture formation capability likely to be in existence in Russia and Mexico (respectively) relative to the likely capability of U.S. entrepreneurs. Policy makers would be able to move a step closer to making decisions based upon empirical evidence v. on the basis of stereotypes or anecdotal evidence.

Further, the positive relationship between new venture formation and job creation is well documented. Recent research suggests that new venture formation and entrepreneurial capability are linked (Bull & Willard, 1993). If cross-cultural differences in entrepreneurship capability could be better documented, then the path to more efficient new venture formation could be clarified, with the resulting added value in a given economy.

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satisfies the first requirement. A primary assumption therefore made in this study is that entrepreneurs and non-entrepreneurs, no matter where they live, will possess a knowledge structure/script (or lack thereof) with respect to their field.

To satisfy the second requirement, a particular feature of entrepreneurial experience must be selected as the focus. In this regard, we take direction from Schumpeter (1934, p. 78) who classifies anyone who "carries out new combinations" as an entrepreneur. Thus, for purposes of this study we consider an individual who has formed a new venture to possess entrepreneurial expertise. We henceforth refer to this expertise as *new venture formation expertise*.

From the previous review of literature, it should be clear that differences are to be expected between new venture formation experts and novices. What may not yet be clear are expectations regarding differences and similarities among experts and novices across countries. Both the economic circumstances and the cultural tradition and experience of a given country might be expected to generate differences in new venture formation expertise. To make this point, a very cursory sketch which parsimoniously outlines these differences follows (recognizing fully that the disciplines which specialize in these comparisons could do them much more justice that is accomplished here). Nevertheless, these outlines do draw the rudimentary boundaries needed to justify the expectations of country-based differences in new venture formation expertise.

We first address economic differences. On a 1995-based "scale of development," Russia, Mexico, and the U.S. are likely to place in ascending order if viewed according to the maturity of their respective market systems. Further, Russia is unique in economic terms because of its prior experience with approximately 70 years under a "command" or centralized economy. And, while Mexico has been part of the Western market system, it has nevertheless experienced its own unique economic circumstances that are related, in part at least, to its proximity to the U.S. and its virtually one-party system of government which at various times has unilaterally appropriated business assets.

The U.S., on the other hand, has experienced relative stability both economically and politically, its "revolution" being much more distant historically than those of Mexico or Russia. As a result the U.S. has a much more stable system of property rights, and a set of institutions that have produced an economy that is both robust and huge. These features will likely have an impact on new venture formation expertise.

Second, we observe that differences also exist among the cultures of the three countries, and that these differences are not unrelated to economic circumstances. Stereotypically, the Americans are perceived as the "fat-cats" with all that this implies: rich in resources and in the economic power and insularity that such riches imply. The Mexicans possess a mixed cultural stereotype that is alternately "siesta-based," for the less informed observer, but remains beset with a combination perception that is opportunistic yet bribery influenced. Russia--while undergoing economic turmoil--possesses a strong cultural heritage, but one which has been traumatized by decades of unrelenting shortages and dependence upon political v. economic means to "get ahead."

What do these descriptions imply in terms of a hypothesis? It seems possible, we suppose, to generate a large list of mainly descriptive expectations in hypothesis form. But given the present status of entrepreneurship research (Low & MacMillan, 1988) where the merely descriptive is "out" and the inferential is "in," and given this early juncture in the present research, it seems more

productive to test a general inferential hypothesis. Accordingly, as a beginning point, we expect that:

Differences exist among the mean vectors of the indicators of new venture formation expertise across expert, novice, and country groups.

METHOD

In this section, the measurement, data gathering, and analysis method utilized to accomplish the tests implied by the foregoing hypothesis, are described.

Measurement: Expertise Scales

Expert theory provides the foundation for the construction of a questionnaire that presents individual respondents with a variety of script cues. Each script recognition cue used to create this instrument was developed using criteria in the Read (1987) script/scenario construction model. Scale construction involved (1) a review of the entrepreneurship and expert theory literature to derive appropriate script cues, and (2) testing these items when combined as scales using exploratory factor analysis, reliability analysis, and a confirmatory factor analysis in LISREL (Mitchell, 1994).

The justification for using these script recognition cues as empirical evidence comes from expert theory. The "... inability to infer further knowledge from the literal cues in the problem statement" is considered to be the primary reason for a novice's difficulty with problem solving (Glaser, 1984: 99). It is also to be expected that novice responses will center on the surface features of problems (Chi, Glaser, & Rees, 1982). Therefore, it seems logical that the ability to recognize script cues (as opposed to selecting a distracter statement) can be used to distinguish experts from novices.

The exploratory and confirmatory analyses result in a 3-scale model (GFI = .862) of new venture formation expertise that centers on key elements related to the success of failure of an entrepreneurial script (Leddo & Abelson, 1986; Mitchell, 1994). The three scales identified in the model are termed the *Arrangements* scale, the *Willingness* scale, and the *Opportunity-Ability* scale, because they correspond with the analytical structure provided by Leddo & Abelson (1986).

The scale items that comprise the Arrangements scale consist of script cues that relate to having funds, a trend of performance increases, technology, and experience. The items that make up the Willingness scale relate to risk taking propensity, to action v. missing opportunity, to "going after a piece of the big money," enormous drive, and an attraction to action-takers, a propensity to invest, to want a "say," and to venture versus seek recreation. The items that define the Opportunity-Ability scale consist of script cues that inquire regarding ability to protect a new venture with knowledge or with entry barriers, the ability to recognize opportunity represented by knowledge of specific industry scripts and success scenarios, and the ability to know how to solve new venture problems with specialized new venture knowledge. Reliability analysis produced coefficient alpha scores of .70 for the Arrangements scale, .58 for the Willingness scale, and .64 for the Opportunity-Ability scale, which are considered to fall within an acceptable range (Eisenhardt, 1988; Finkelstein, 1992; Van de Ven & Ferry, 1980).

Data

Data (n = 310) are gathered from 148 (Western) U.S. respondents, 76 respondents from the St. Petersburg area in Russia, and 86 respondents from throughout Mexico. This convenience sample (though the data are not strictly random, there is no reason to suppose that a random sample would yield different results) is composed of two parts: practising entrepreneurs (new venture formation experts), and non-entrepreneurs (novices) as shown in Table 1.

TABLE 1
Description of Sample

Description	Groups					
	U.S. Experts	U.S. Novices	Russian Experts	Russian Novices	Mexican Experts	Mexican Novices
Group totals	54	94	55	21	18	68
Sample percent	17.4	30.3	17.7	6.8	5.8	22.0
Male	45	61	38	10	14	46
Female	9	33	17	11	4	22
Asian		4				
Caucasian	53	86	55	21		1
Hispanic		3			18	67
Other	1	1				
Mean age	44	29	37	35	32	29
Yrs. college	3.8	3.5	3.8	3.2	3.7	3.3

Respondents are classified as new venture formation experts if they have either started a business that has been in existence over two years, or started three or more businesses at least one of which is successful—a very "grass-roots" approach to the identification of individuals with "new venture formation expertise." Since the descriptive statistics reported in Table 1 indicate large differences in age, and in the male-female proportion in the U.S. sample, t-tests were conducted to examine this portion of the sample for age or gender bias. No such biases were found.

Analysis

The three scales identified in the exploratory factor analysis, and confirmed in the LISREL baseline measurement model developed using the U.S. data, are used to measure the expertise of individuals. Multiple discriminant analysis is used to test the main hypothesis. Such a hypothesis is confirmed where: (1) a test of the equality of group mean vectors using an approximate F-test based upon Wilks' lambda is significant, (2) the eigenvalues of the

discriminant functions are significant using an approximate chi-square statistic, and when (3) the classification of cases into groups by the discriminant functions in a jackknife analysis (Lachenbruch, 1967) is relatively more effective than estimating group membership using the prior probabilities of group membership contained in the sample.

The jackknife procedure is particularly useful because in the analysis each observation is successively withdrawn from the computation and is classified according to the discriminant function computed with data from the remaining cases as predictors. Thus, each case to be classified may be considered to come from the population at large, a uniquely serviceable assumption as attempts to interpret the findings are made.

RESULTS

As shown in Tables 2 and 3 respectively, the main hypothesis is confirmed, since the test of the equality of group mean vectors using an approximate F-test based upon Wilks' lambda is significant ($p < .0000$), the eigenvalues of two discriminant functions are significant using an approximate chi square statistic ($p < .0000$ and $.0027$ respectively), and the jackknifed classification of cases into groups by the discriminant function generally improves the probability of correctly estimating group membership as compared to using the prior probabilities of group membership contained in the sample.

It is also useful to note that when the centroids (means) of the six groups are plotted as ordered pairs (coordinates) for each centroid, and the separation of groups is visualized using isodensity ellipses (circles), the plot (Figure 1) shows that although the groups are appreciably overlapped, the means are significantly different for these new venture expertise components across groups. Isodensity ellipses (circles) that are expected to contain 20 percent of the subjects in each group were plotted with a diameter of each circle computed to be 1.34 units (Watson, 1982). The isodensity circles in Figure 1 depict the overlaps among the groups.

An interpretation of the two discriminant functions is possible when the loadings, each in excess of .90 for both variables, are examined. With a rotated loading of 0.99856, discriminant function I (shown on the horizontal axis of Figure 1) appears to be emphasizing the "preparedness to venture" dimension of entrepreneurship; i.e., the possession of the actual contacts, technology, and resources—the arrangements—necessary to venture. Groups located at higher positions on this function tend to be more prepared to take advantage of new venture ideas and opportunities when they arise. The expert group as a whole, and the U.S. expert group in particular appears to be much farther along in this aspect of venturing preparedness, in that they have experienced failure episodes in their venturing pasts, have built support and resource networks, have had frequent contact with other entrepreneurs, and have technology and resources that facilitate new venture formation. All of these characteristics are reflected in the items of the Arrangements scale, which measures the primary construct influencing discriminant function I.

Discriminant function II (shown on the vertical axis of Figure 1) is notable for the separation of the Russian novices on the high side of the vertical axis, and the U.S. novices on the low. The high rotated discriminant loading (0.92658) of discriminant function II stresses the opportunity capturing dimension of entrepreneurship; i.e., the capability to protect a new venture with knowledge or with entry barriers, the ability to recognize opportunity represented by

TABLE 2
Results of 6-Group 3-Scale
Multiple Discriminant Analysis $\eta^2 = .310$

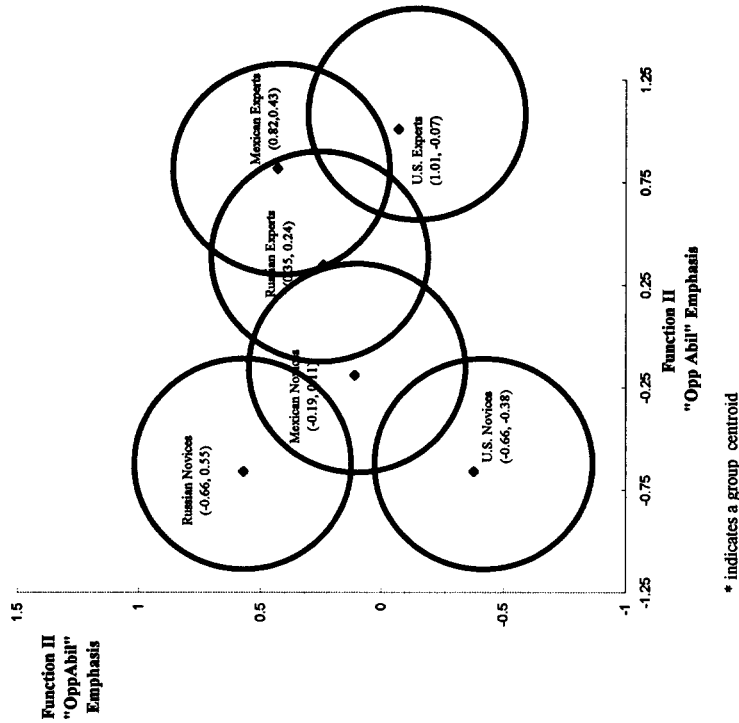
	Discriminant Axis I	Discriminant Axis II
Eigenvalue	.4389	.0755
Significance level $p =$.0000***	.0027**
Percent of total discriminating power	79.67	17.44
Cumulative percentage of discriminating power	79.67	97.11
Rotated loadings:		
Arrangements	.99856*	-.04917
Willingness	.36007	.92658*
Opport-Abil	.27009	.05170
Group means (centroids)		
U.S. Experts	1.01	-0.07
U.S. Novices	-0.66	-0.38
Russian Experts	0.35	0.24
Russian Novices	-0.66	0.55
Mexican Experts	0.82	0.43
Mexican Novices	-0.19	0.11

* indicates the grouping on a discriminant axis of variables with large loadings for that axis (Norušis, 1990)

Related Statistic	Value	$p =$
Equivalent F statistic	9.639	.0000**
Box's M	42.687	.0856
Univariate F:		
Arrangements	26.620	.0000***
Willingness	2.223	.0519
Opport-Abil	7.402	.0000***

* $p < .05$ ** $p < .01$ *** $p < .001$

FIGURE 1
Discriminant Function AII Group Scatterplot:
20 Percent Isodensity Circles



* indicates a group centroid

knowledge of specific industry scripts and success scenarios, and the ability to know how to solve new venture problems with specialized new venture knowledge. Groups located at higher positions on this function tend to have an acuity for recognizing, seizing, and holding on to an economic opportunity. Interestingly, the plot indicates that the U.S. expert and novice groups are lower than all of the other groups along the vertical axis.

U.S. experts are thus shown to have the highest preparedness to venture as represented by discriminant function I, which has mainly an "arrangements" emphasis. Russian novices are highest on discriminant function II, which is characterized mainly by the "opportunity-ability" construct, followed closely by the Mexican entrepreneurs, indicating a high acuity in these two groups for recognizing and protecting economic opportunities. Mexican experts have the highest "willingness" to venture (although the discriminant function that emphasizes the "willingness" construct is not significant in the analysis [univariate $F_p = .0519$; Wilks' lambda $p = .6985$]). U.S. novices are lowest on both discriminant function I and discriminant function II. Russian experts and novices are lowest on the "willingness"-based discriminant function.

In addition, the classification functions derived by multiple discriminant analysis were computed using the post-test results of the 310 participants in the study, and the observations were classified as belonging to the group having the highest estimated posterior probability. The classification matrix giving the number of subjects classified into the different groups compared to their actual groups, using proportionate prior probabilities (Eisenbeis, 1977), and the percentages classified correctly are reported in Table 3.

TABLE 3
Jackknifed Classification Matrix

Actual Group	Prior Prob.	Correct %	Cases classified into group					
			USE	USN	RSN	MxE	MxN	
USExp	0.174	59.3	32	9	9	0	0	4
USNov	0.303	77.7	9	73	3	0	0	9
RSExp	0.178	12.7	17	21	7	0	0	10
RSNov	0.068	9.5	0	10	1	2	0	8
MxExp	0.058	0.0	6	2	7	0	0	3
MxNov	0.219	14.7	10	35	12	1	0	10
Total	1.000	40.0	74	150	39	3	0	44

The total correct classifications were found to be 59.3, 12.7 and 0.0 percent for the expert groups, respectively, and 77.7, 9.5, and 14.7 percent respectively for the three novice groups. The two discriminant functions substantially increase classification capability for the U.S. experts, and U.S. and Russian novices since, based on the proportion of each group in the sample, it would be

expected that lower percentages of the participants would be classified correctly. The lower classification percentages for the Russian and Mexican experts and the Mexican novices show that these discriminant function scores fall somewhere between "high" and "low" preparedness to venture on discriminant function I (which explains approximately 80 percent of the variance among groups). Because of the prominence of discriminant function I in explaining variance, however, most errors are made in only one direction: the misclassification of most of these "in-between" cases as U.S. novices.

IMPLICATIONS

Due to the recent emergence and exploratory nature of this research stream, and the "research in progress" character of this study in particular, the implications of these results are tentative. This study set out to answer the research question: Do cross-cultural differences in expertise among the entrepreneurs and non-entrepreneurs of various countries have implications for public policy? To answer this question, entrepreneurial expertise had first to be measured, and second, to be compared among and between various groups and implications derived. We use the main themes identified in the discriminant analysis to guide our discussion. The results permit both intuitive and non-intuitive implications to be evaluated.

Preparedness Implications

It is no surprise that U.S. venture formation experts are highest on the discriminant function that represents preparedness to venture. But is somewhat surprising that U.S. novices are lowest on both discriminant functions, indicating a relative lack of capability in venturing. From a public policy standpoint, we suggest that this finding maps a vast distance between experts and novices in the U.S.—and that the notion that job creation through venture formation (for example) may be misguided and wasteful of venturing resources. This finding may also help to explain the relatively high incidence of new venture failure (Birch, 1988; McMullan & Long, 1990; Shapero & Giglierano, 1982).

The relative placement of groups along discriminant function I may be explained in part by differences in "economic infrastructure." The high U.S. experts' placement followed closely by Mexican experts, may be explained by the highly developed North American financial markets that make venturing possible. For this reason we focus our discussion of preparedness implications on the Russian situation.

In our experience with individual Russians, we note that it is almost impossible to prepare to venture in Russia at present. There is virtually no banking system to speak of, and opportunism is rampant. For example, on a recent trip one of the authors could not get money in Russia unless she "hand-carried" cash. Over the last 18 months, credit card use has become possible in foreign firms (e.g. Pizza Hut) but is limited, and is only available in the largest cities. Also, there are only a few locations in Moscow where travelers' checks can be cashed, and the fee is not small.

Political and economic instability, daily changes in tax laws, and increases in the intrusion by organized crime into the fledgling market system put venturing in North American terms, out of reach for most people in Russia. As might be expected so soon after the fall of a system based largely upon political patronage, only those who have the right connections have access to needed

financial, legal, and bureaucratic resources to implement their ideas. This may explain the position of Russian novices in the plot in Figure 1: good, viable, protectable ideas—but no ability to implement. Thus, Russian novices are highest on discriminant function II (opportunity emphasis) and tied for lowest on discriminant function I (arrangements emphasis).

This situation has strong policy implications for relations with Russia. There is a saying about foreign aid that we have heard several times from various Russians—that it (foreign aid) "goes into the sand." That is, foreign aid tends to line the pockets of bureaucrats rather than towards helping those for whom it was intended. Thus, with respect to the Russia-focused policy implications of the positioning of groups on the first discriminant function, we recommend first, that efforts aimed at increasing institutional stability be highly prioritized. Second, because funding sent through official bureaucratic channels does virtually nothing for the individual new venture creator, the limited aid available for assistance should be channeled (or continue to be channeled): (1) to assist foreign direct investment (partnerships, joint ventures etc.), and (2) into education and training designed to build the common knowledge base necessary for the formation of the new institutions required. Policy implications for the U.S. case suggest that U.S. novices need better preparation to venture, which applies to a lesser degree, it appears, to Mexico.

Opportunity Implications

It was not obvious to us at the outset that Russian novices would be highest on an opportunity-based discriminant function, or that the non-U.S. groups as a whole would be higher than those in the U.S., although we somewhat expected the Mexican experts to be quite capable in opportunity recognition. We think that this finding clearly highlights the complacency that economic stability in the U.S. engenders, while emphasizing additional opportunity-based features of the Russian and Mexican situations.

Returning first to the Russian case, we observe that there are immense opportunities available in the Russian economy. One must be blind not to see four or five very viable opportunities in only one or two days in Russia. Second, the Russians have always needed to be able to "safeguard their turf." In the face of constant shortages, they have had to learn to work around the system and find creative means for survival, since the formal system did not fulfil many of their needs. Russians learned the skills necessary to "protect their sources of supply" for themselves and for their families. This is a skill that most Russians we have met have mastered. Of course the challenge becomes turning this "skill" to the benefit of normal v. "black" markets and ventures.

In the case of the Mexican groups, it is interesting that they fall somewhat between the U.S. and Russian cases, since their market system development may also be said to fall between that of the U.S. and that of Russia. This points to another needed study which evaluates relationships between opportunity scores and economic development levels, using a much broader range of countries. With the relatively high opportunity-ability and preparedness levels indicated, it appears possible to suggest that real possibilities exist for venturing in Mexico. Certainly, all things being equal, there appears to be greater expertise in the Mexican situation than exists for U.S. novices.

Nevertheless, direction is still unclear from a policy standpoint, not due to the findings reported here, but rather to the other instabilities presently reflected in Mexico's recurring currency crises. Once again, we recommend that the fundamentals of institutional stability become the

focus. Recognizing that sovereign countries have the latitude to link "cultural traditions" and economic institutions, we are not hopeful that the adoption of the type of stable economic institutions that are necessary for successful venture formation in Mexico can be "de-coupled" from nationalistic rhetoric. In a sense, the facilitating of an improved venturing environment and "Americanization" can, and often are, viewed synonymously. The sorting of cultural priorities that addressing this issue implies is a long and sometimes arduous process that is measured in decades, unless the present signals from world currency markets are acted upon in a timely manner, and responsive measures are forthcoming as a result.

The most clear policy recommendations that come from the results reported here are not unlike the standards presently utilized within the venturing community itself (Hall & Hofer, 1993; Stuart & Abetti, 1990): back the "horses" that have previously demonstrated the capability to win. U.S. entrepreneurs appear to be the best bet for capably starting the next set of new ventures. However, if a longer look is considered to be possible, then it appears likely that both Mexican experts and novices offer a level of new venture formation expertise that is at a minimum interesting, and may even be attractive over the long haul. Policies directed toward helping venture formation in Russia appear to be more long term. Partnering or joint venturing in the short run, and the building of the necessary institutions over a longer horizon are indicated.

But, as noted above, these are preliminary interpretations of the analysis. Additional thought and study is necessary and underway. The approach taken here is limited in several ways (see Mitchell, 1994 for a full discussion), and as such can only contribute a starting point to an important, but under researched topic: The implications of multiple cultures and entrepreneurial expertise for international public policy.

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157

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156