

Networking: A Critical Success Factor for Entrepreneurship

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This study explores how individual and inter-organizational networking, as mediators, may provoke desired entrepreneurial success. A quantitative study using Partial Least Squares (PLS) was conducted to determine: How and to what extent do systemic and individual factors—mediated by inter-organizational and individual social networking activities—impact the likelihood of entrepreneurial success? To illustrate this, we investigate Puerto Rico's (P.R.) unexplained stagnant entrepreneurial environment. Our findings reveal that Puerto Rican entrepreneurs are not using their networks efficiently to overcome the inadequate institutional structure. Therefore, a better interconnected entrepreneurial ecosystem must be designed; while entrepreneurs must use more effectively their networks.

INTRODUCTION

Entrepreneurship scholars hold very different beliefs about the nature of entrepreneurship activities (Gartner, 1990) and explanations of its role in desired economic progress (Welter & Smallbone, 2011). However, since entrepreneurship is a complex and dynamic phenomenon (Gartner, Shaver, Carter, & Reynolds, 2004), different views exist regarding the factors that really spur it (Acs & Szerb, 2010). Hence, researchers must clearly establish the limitations and arguments upon which they are basing their study (Shane & Venkataraman, 2000). Advanced studies on entrepreneurship need to explore the interaction between external factors, such as entrepreneurial opportunities and education and national mindset toward entrepreneurship; and personal factors, such as entrepreneur's social competence and efficacy and their influences on entrepreneurial performance (Welter & Smallbone, 2011).

This research focuses on entrepreneurs doing business in Puerto Rico (P.R.) because among high-income countries P.R., at 3.1 percent, has one of the world's lowest rates of early-stage entrepreneurial activity despite the government's two-decade effort to spur it, according to Bosma, Jones, Autio, and Levie (2008). Long reliant on the presence of multinational corporations to sustain the economy and historically lax in encouraging local business development, P.R. was hard hit by the elimination of tax

exemptions in 2006 that incentivized U.S. subsidiaries to establish operations on the island. Despite several attempts to jumpstart the economy in the wake of their departure, reports from worldwide organizations such as the Global Entrepreneurship Monitor (GEM) (Bosma et al., 2008), the World Economic Forum (WEF) (Schwab, 2012), and the World Bank (2013) certify the challenging environment of entrepreneurship in P.R. Experts blame structural problems rather than a lack of entrepreneurial spirit for entrepreneurship's failure to flourish in P.R. (Aponte, 2002b).

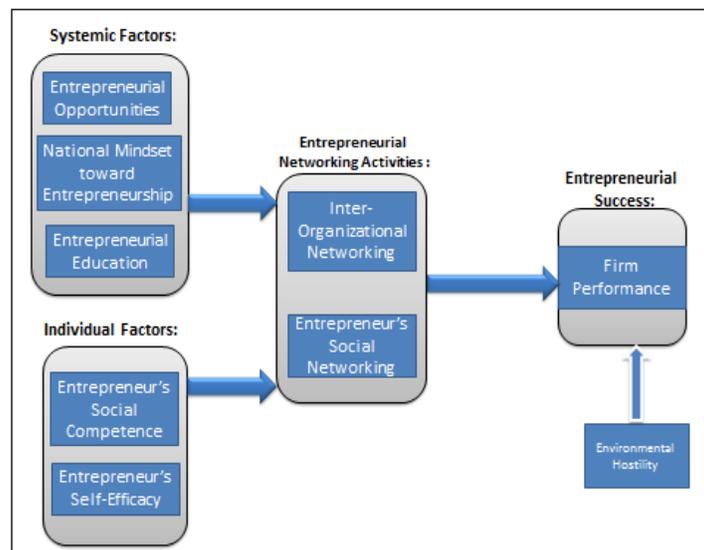
Based on a qualitative research done by De Hoyos-Ruperto, Romaguera, Carlsson, and Perelli (2012) this paper theorizes that individual-level factors, including entrepreneur self-efficacy (SE) and social competence (SC), and systemic factors such as entrepreneurial education (EDU), opportunities (OPP), and national mindset (MIND) act as sourcing mechanisms that can predict entrepreneurial success (ES); while is mediated by inter-organizational networks (ONETW) and individual social network activities (INETW). Considering the world economic crisis, environmental hostility (HOST) is used as a control variable to provide a possible alternate impacting factor and explanation for success.

Our data suggest that systemic factors as a whole are not working as suitable sources of the complementary relationships needed to create an environment conducive to successful entrepreneurship. Entrepreneurial advocacies are not well interconnected among them to complement entrepreneurs' challenges. Meanwhile, entrepreneurs are not efficiently using their networks to overcome the inadequate institutional structure. Therefore, a better interconnected entrepreneurial ecosystem and more effective individual social networking may be necessary for both practitioners and policy makers to design a successful entrepreneurial environment.

Theoretical Background, Conceptual Model and Hypotheses

Systemic factors such as entrepreneurial education (Levie & Autio, 2007), opportunities (Shane & Venkataraman, 2000), and national mindset toward entrepreneurship (Casson, 2003), and individual factors such as social competence (Baron & Markman, 2000) and perceived self-efficacy (Bandura, 1997) can positively or negatively influence the overall entrepreneurship success of a nation. However, while these factors perform as sourcing mechanisms, they are being mediated by other factors such as inter-organizational network activities (Butler & Hansen, 1991) and/or the entrepreneur's social networking activities (Hoang & Antoncic, 2003; Johannisson, 1998) as our conceptual research model in Figure 1 below shows.

FIGURE 1
CONCEPTUAL QUANTITATIVE RESEARCH MODEL



To address the above mentioned concepts, an empirical study with entrepreneurs was designed to examine the following question: *How and to what extent do systemic and individual factors—mediated by inter-organizational and individual social networking activities—impact the likelihood of entrepreneurial success?*

Entrepreneurial Success as the End Product

Several authors remarked on the importance of using multiple performance dimensions (Venkatraman & Ramanujam, 1986). Therefore, this study uses both growth measurements, such as sales growth rates and increases in the number of employees, and profit measurements, such as net profit margin and financial conditions compared with three years prior, through a primary data source—questionnaire—to assess entrepreneurial success based on firm performance (Questionnaire and Construct Definition Table is available upon request).

Systemic Factors as Sources of Entrepreneurial Success

The Role of Entrepreneurial Opportunities in Entrepreneurial Success

The literature underscores the importance of recognizing and exploiting opportunities as well as a willingness to accept it to achieve entrepreneurial success (Shane, 2003). Opportunities, however, are not always perceived in the same way; therefore, how these are presented, the people they are presented to, and how they take advantage of them are crucial (Shane & Venkataraman, 2000). Thus, a positive perception of entrepreneurial opportunities is a necessary condition for the entrepreneurial success. Therefore, we propose:

Hypothesis 1. Perceived entrepreneurial opportunities will positively impact entrepreneurial success (1a); inter-organizational networking (1b); and, individual social networking (1c), when controlling for environmental hostility.

The Role of National Mindset in Entrepreneurship and Entrepreneurial Success

In 2004 the European Commission defined entrepreneurship as the mindset and process needed to create and develop economic activity within new or existing organizations. A national mindset, may determine the industrial structure, the expertise developed, and the likelihood of a successful venture (Guiso, Sapienza, & Zingales, 2006). Hence, it is expected that a country with an adequate entrepreneurial mindset embraces an individual sense of responsibility about what happens around them and also cultivates a collaborative and cohesive environment as part of its entrepreneurial strategy (Aldrich and Zimmer, 1986). Therefore, we propose:

Hypothesis 2. National mindset toward entrepreneurship will directly impact entrepreneurial success, when controlling for environmental hostility.

The Role of Entrepreneurial Education in the Likelihood of Entrepreneurial Success

Entrepreneurial education is a cornerstone of entrepreneurial success (Ronstadt, 1987) as the educational system's structure may influence national development (Todaro, 1981). The World Economic Forum (2009, p.7) highlighted the importance of entrepreneurship education on entrepreneurial development "...education is one of the most important foundations for economic development, entrepreneurship is a major driver of innovation and economic growth...". Unfortunately, the 2010 GEM points out that the content of entrepreneurship education is inadequate in most countries (Corduras-Martinez, Levie, Kelley, Saemundsson, & Schott 2010). Kirby (2003) affirmed that educational systems need to focus not simply on what is taught but how it is taught. On the other hand, Wilson, Kickul, & Marlino (2007) contend that entrepreneurial education that leads to entrepreneurial success is one that promotes self-efficacy and self-confidence. Moreover, self-efficacy enhanced by education may impact entrepreneurial intention (Zhao, Seibert, & Hills 2005), perceived feasibility (Peterman & Kennedy, 2003), and successful venture performance (Bandura, 1997). Consequently, we propose:

Hypothesis 3. Appropriate content of entrepreneurial education will positively impact entrepreneurial success (3a); and, individual self-efficacy (3b), when controlling for environmental hostility.

Hypothesis 3c. Self-efficacy will partially mediate the relationship between entrepreneurial education and entrepreneurial success, when controlling for environmental hostility.

Individual Factors as Sources of Entrepreneurial Success

The Role of Entrepreneurs' Social Competence in Entrepreneurial Success

Entrepreneurs' social competence refers to their ability to interact effectively with others and adapt to new social situations with the purpose of developing strategic relationships that leverage business opportunities and competitiveness (Baron, 2000). Baron and Markman (2003) claim that the higher an entrepreneur's social competence, the greater their financial success. To operationalize the entrepreneur social competence construct, this study adopted the four dimensions used by Baron and Markman (2003): Social Perception, Social Adaptability, Expressiveness, and Self-Promotion. Consequently, we propose:

Hypothesis 4. An entrepreneur's social competence will positively impact entrepreneurial success (4a); and, individual social networks (4b); when controlling for environmental hostility.

The Role of Entrepreneurs' Self-Efficacy in Enhancing Entrepreneurial Success

According to Krueger and Brazeal (1994), individuals' self-efficacy can affect venture decisions and firm performance; and Boyd and Vozikis (1994) claim that self-efficacy is fundamental to moving from entrepreneurial intention to action. However, perceived self-efficacy could be more relevant, because, as Markham, Balkin, & Baron (2002) point out, individuals are motivated by their perception rather than by their objective ability. Perceived self-efficacy refers to an individual's assessment of his/her skills and ability to carry out a task, but it could be different in reality (Bandura, 1997).

Simon, Houghton, & Aquino (1999) contend that the positive side or view of the aforementioned researchers, the state that perceived self-efficacy will negatively affect entrepreneurial outcomes because of individual overconfidence or overestimation of skills. As a result, entrepreneurs may overlook contradictory signs and information and harbor higher expectations of success. Following Simon et al.'s (1999) line of thought, we hypothesize:

Hypothesis 5. Perceived self-efficacy will negatively impact entrepreneurial success (5a); and individual social networks (5b); when controlling for environmental hostility.

The Mediator Role of Individual Social Networking and Inter-Organizational Networking

As Audretsch and Thurik (2004) mention, Thornton and Flynn (2003) and Saxenian (1994) argue that "(successful) entrepreneurial environments are characterized by thriving supportive networks that provide the institutional fabric; linking individual entrepreneurs to organized sources of learning and resources" (p. 5). Hence, individual social networking and inter-organizational strategic network activities are important to a successful startup and to an ongoing competitive advantage, as they may constrain or facilitate resource acquisition and the identification of opportunities (Beckert, 2010).

For this study, the individual social networking construct represents entrepreneurs engaging in networking activities to enhance his/her entrepreneurial venture (Aldrich & Zimmer, 1986). These entrepreneurial networking activities may occur with other entrepreneurs; contacts like relatives, friends, and acquaintances; and entrepreneurial advocates (Birley, 1985). The aim of those networking activities is to provide assistance to entrepreneurs in the form of expert opinions and counseling, shared experiences and role models, information and resources, and support and motivation (Manning, Birley, & Norburn 1989). Consequently, we propose:

Hypothesis 6. Individual social network activities will positively impact entrepreneurial success, when controlling for environmental hostility.

Additionally, for this research inter-organizational networking consists of formal and/or informal collaborative networking activities among entrepreneurial advocates at the public, private, and civic levels that may facilitate the entrepreneurial process from an idea generating stage, to a development stage, and later to a strategic positioning one (Butler & Hansen, 1991; Dubini & Aldrich, 1991; Uzzi, 1996). Those collaborative network activities may include alliances to improve entrepreneurial mechanisms (Audretsch & Thurik, 2004). Therefore, we propose:

Hypothesis 7. Inter-organizational network activities will positively impact entrepreneurial success, when controlling for environmental hostility.

As entrepreneurship is embedded in networks, opening entrepreneurs to social networks may advance or constrain links to better resources and information, as well as offer faster responses to opportunities and challenges (Klyver & Hindle, 2006). Furthermore, inter-organizational networks may facilitate or constrain the information and resources that could turn opportunities into successful ventures (Aldrich & Zimmer, 1986). Additionally, Brüderl and Preisendörfer (2000) contend that venture success is attained only if entrepreneurs make effective use of their networks. Consequently, entrepreneurs with high social competence (Manning et al. 1989) and self-efficacy (Boyd & Vozikis, 1994) are more likely to establish strategic networks that will help them overcome their limited resources and barriers, particularly of information. This was confirmed by Baron and Markman (2003) who found that entrepreneurs' social networks assist them in gaining access to strategic business contacts, but through the effective use of their social competence. Therefore, we propose:

Hypothesis 8. Inter-organizational network activities (8a) and Individual social networking activities (8b); will partially mediate the relationship between opportunities and entrepreneurial success, when controlling for environmental hostility.

Hypothesis 8c. Individual social networking activities will indirectly mediate the relationship between social competence and entrepreneurial success, when controlling for environmental hostility.

Hypothesis 8d. Individual social networking activities will partially mediate the relationship between self-efficacy and entrepreneurial success, when controlling for environmental hostility.

Environmental Hostility as Controlled Cause

In this study, environmental hostility is used as a control variable since this contextual factor may affect successful venture activities (Covin, Slevin, & Covin 1990). Environmental hostility denotes an unfavorable external force for business as a consequence of radical changes, intensive regulatory burdens, and fierce rivalry among competitors, among others (Covin and Slevin, 1989). As entrepreneurship is a complex task that is extremely sensitive to "habitat" (Miller, 2000), environmental hostility is expected to impact firm performance. Hence, environmental hostility was isolated from the determinants integral to this study.

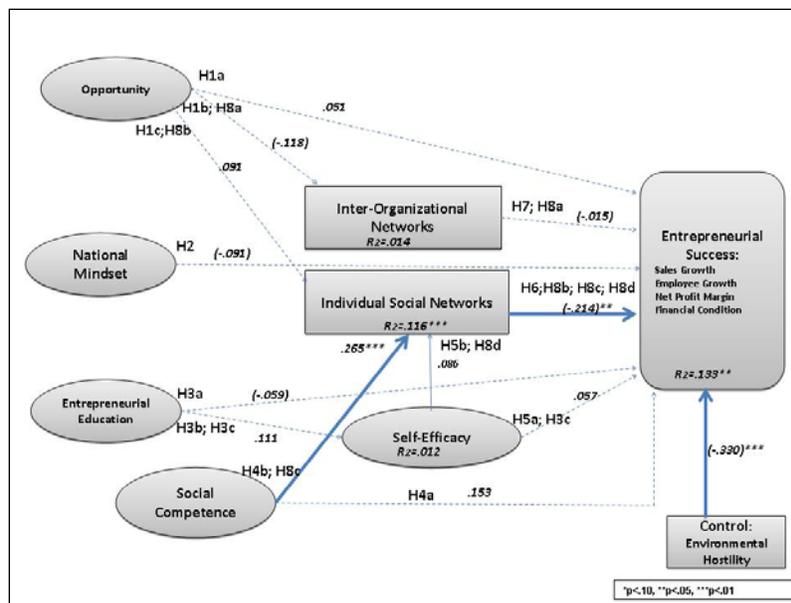
RESEARCH DESIGN AND DATA COLLECTION

This is an empirical study that attempts to model the relations among variables in the proposed model using Partial Least Squares (PLS). PLS is ideally suited for small sample sizes, formative indicators, and data that do not conform to traditional statistical assumptions (Chin, Marcolin, & Newsted 2003). To

obtain t-statistics for the paths, in line with Baron and Kenny's (1986) test, we conducted a bootstrap test using 2000 resamples.

Data screening was done to ensure the meeting of data analysis requirements. Once the data were free from outliers and adequate for the multivariate analysis, Exploratory Factor Analysis (EFA) was conducted to define the underlying structure of the variables. Following this step, the Confirmatory Factor Analysis (CFA) took place to assess the degree to which the data met the expected structure. For both analyses—EFA and CFA—the respective reliability and validity tests were applied. During the CFA, the proposed model was modified to obtain the best “goodness of fit” model for the proposed relationships. Once all the tests and the recommended modifications from the previously mentioned analyses were complete, we proceeded to test the structural hypotheses with the modified structural model to obtain the final model. Details for the aforementioned procedures are explained in the following sections.

FIGURE 2
PLS RESULTS OF PROPOSED STRUCTURAL MODEL WITHOUT MODERATORS



Construct Operationalization

This research—conducted online through a web-based survey administered by Qualtrics—was developed and used to test the proposed model. The study was specifically designed to test the validity of the theoretical measurement model and hypothesized relationships among the constructs. The survey items were derived from existing measures with some adaptations to fit the uniqueness of this research. We relied on existing measures since our intention in this study was not to develop new measures when available items had been validated in prior research.

Measures of systemic factors (EDU, OPP, and MIND) were adapted from the National Expert Survey (NES) (Reynolds et al. 2005). The construct of SE was adapted from Chen, Gully, & Eden (2001); the constructs of SC were adapted from Baron and Markman (2003); and measures of INETW and ONETW were adapted from Chen, Zou, & Wang's (2009) measurements. Finally, the ES construct was modified to reflect the firm performance based upon Chua (2009). Variables were operationalized as reflective, formative using the guidelines of Petter, Straub, & Rai (2007), and categorical as follows: The variables EDU, OPP, MIND, SC, SE, HOST, INETW and ONETW were operationalized as reflective constructs on a five-point Likert scale (with 1=strongly disagree and 5=strongly agree).

The entrepreneurial success-related constructs of firm performance were operationalized as formative through different scales such as sales growth rate and net profit margin, change in the number of employees, and variances in financial conditions over the last three years (Jarvis, MacKenzie, & Podsakoff 2003). We chose to measure firm performance through sales and employee growth, net profit margin, and financial condition, as well as through formative indicators guided by the literature of that type of measurement (Chua, 2009). Likewise, because we had more than two variables predicting our dependent variable, we conducted a multicollinearity test. The results of the variable inflation factor analysis indicate that the predictor variables are separate and distinct (VIF range: 1.01 to 1.51).

The initial survey was pre-tested on a group of known entrepreneurs using Bolton's technique, operationalizing item response theory (Bolton, 1993). During pilot tests, five questions were flagged due to problems in comprehension; subsequent changes were approved by the testers. Since entrepreneurs' time is limited, the questionnaire was calculated to be completed within 15 minutes to improve the response rate.

Data Collection Sample

This study was conducted with entrepreneurs doing business in different industries and regions in P.R. (Details is available upon request). The sample consisted of 135 participants. The data were collected through a survey that assured participants that the study was purely for research purposes and that participation was voluntary. All surveys had the option of being answered in Spanish or English, the thought being that while Spanish is the primary language in P.R., most Puerto Rican entrepreneurs consider English the language of business. Study participants were identified and selected from the Puerto Rico Trade and Export Office Official Register of Business. This list is public, but needs to be requested. A total of 1,500 surveys were emailed; 221 were returned, resulting in a response rate of approximately 15 percent. However, only 135 were returned completed and usable for data analysis. Lower response rates for entrepreneur surveys seem typical when compared with the general population (Dennis, 2003).

We tested for response bias based on the time of response (early vs. late) following Armstrong and Overton's (1977) test. To do this, we conducted a one way ANOVA using the dependent variables (three observed variables), and using response date as the distinguishing factor. The results of the ANOVA show that there is no significant difference among the values (5.66 to 6.44) for the dependent variable between early and late responders.

There were five percent of missing values of the total values in the data set. Since substitution also is acceptable, we input the mean value for each missing value (Tabachnick & Fidell, 2007). The minimum, maximum, and mean values of all variables appear to be reasonable.

Statistical Analysis

Based on a bivariate outlier analysis at a confidence interval of 95 percent, we found close to 115 cases of outliers. However, while we expect some observations to fall outside the ellipse, we only deleted five respondents that fell outside more than two times (Hair, Black, Babin, & Anderson 2010). Descriptive statistics, correlations, and Cronbach's alphas for all the variables are presented in Table 1.

Measurement Model: Exploratory Factor Analysis and Confirmatory Factor Analysis

An EFA was used to reveal the underlying structure of the relationship among a set of observed variables. Principal Axis Factoring with Direct Oblimin rotation was performed with valid, reliable, and adequate results which, based on the collected data, validates that eleven factors exist throughout the survey. We chose oblique rotation because of its assumption of correlated variables consistent with our understanding of the issues in this study (Field, 2005). Direct Oblimin, which is a particular type of oblique rotation, was selected because it allows factors to be correlated and diminished interpretably (Costello & Osborne, 2005).

TABLE 1
DESCRIPTIVE STATISTICS, CORRELATIONS, AND CRONBACH'S ALPHAS

Factor	Promo	Mind	ONetw	Edu	Host	Adapt	SE	Opp	Perce	Expre	INetw	Mean	SD
Promo	(.09)											3.7305	.7794
Mind	-.171	(.925)										2.8263	1.042
ONetw	.111	-.200	(.926)									3.0295	.9172
Edu	-.069	-.175	.146	(.849)								3.0483	1.033
Host	-.138	.327	-.080	-.162	(.867)							2.9641	1.064
Adapt	-.138	.110	-.026	.076	.011	(.857)						4.4063	.5960
SE	-.123	.075	-.041	-.058	.065	.281	(.874)					4.3559	.5793
Opp	.026	.042	-.060	.039	.014	-.032	-.175	(.868)				3.4081	1.116
Percep	.169	.073	.014	-.006	.028	-.341	-.323	.166	(.842)			4.0966	.4912
Expres	.207	-.212	-.048	.144	-.020	-.142	-.002	.044	.026	(.90)		3.6974	.8410
INetw	-.139	-.013	-.171	-.017	.214	.273	.117	-.079	-.154	.016	(.817)	3.2500	.8535

Note. Figures in parentheses are Cronbach's Alphas.

The KMO measure of sampling adequacy was .687, and Bartlett's Test of Sphericity was significant ($\chi^2 = 3819.86$, $df = 703$, $p < 0.000$), indicating sufficient inter-correlations. Moreover, almost all MSA values across the diagonal of the anti-image matrix were above .50 and the reproduced correlations were over .30, suggesting that the data are appropriate for factoring. An additional check for the appropriateness of the respective number of factors that were extracted was confirmed by our finding of only 4 percent of nonredundant residuals with absolute values greater than 0.05.

The selected EFA structure was the one with the eigenvalues greater than one, which also fit with the eleven expected factors. The solution was considered good and acceptable through the evaluation of three possible models and their respective statistical values. During the evaluation process, twelve items were eliminated for their communality values below .50 (Igbaria, Livari, & Maragahh 1995). The total variance explained was 68.7 percent, which exceeds the acceptable guideline of 60 percent (Hair et al., 2010). To test the reliability of the measures, we used a coefficient alpha (Gerbing & Anderson 1988). Acceptable values of Cronbach's alpha greater than .70 indicate good reliability (Nunnally, 1978). As statistics presented in Table 1 show, all factors have acceptable reliability.

Convergent validity can be made based on the EFA loadings. Since all of the variables loaded at levels greater than .50 on expected factors, convergent validity is indicated (Igbaria et al., 1995). Discriminant validity measures the extent to which measures diverge from factors they are not expected to quantify. In EFA, this is aptly demonstrated by the lack of significant cross loadings across the factors (over .20 differences). The items belonging to the same scale had factor loadings exceeding .50 on a common factor and no cross-loadings. The eleven extracted factors seem to be reflective constructs as each item asks similar things.

We performed the CFA using PLS and began by reviewing the factors and their items to establish face validity. We specified the measurement model in PLS with the eleven factors derived from the EFA, no modifications are considered to improve the original model. Our EFA modified model shows all the reliability coefficients above .70 and the Average Variance Extracted (AVE) above .50 for each construct. The measurements are thus reliable, and the constructs account for at least 50 percent of variance.

In the Correlations Table, (see Table 2) the square root of each construct's AVE is greater than the correlation between constructs, thus establishing sufficient discriminant validity (Chin, 1998). Each item loads higher on its respective construct than on any other construct, further establishing convergent and discriminant validity (Gefen, Straub, & Boudreau 2000).

TABLE 2
MEASUREMENT MODEL RESULTS CONFIRMATORY FACTOR ANALYSIS: LOADING
AND MEASUREMENT PROPERTIES OF CONSTRUCTS

	Construct/ Items	Loadings/ Weights	t-Value	AVE	Composite Reliability	Communalities
1	Promotion			0.77	0.93	
	Q16_3_1	0.7564	20.3088			0.5722
	Q16_4_1	0.9087	28.9024			0.8258
	Q16_5_1	0.9306	30.0956			0.866
	Q16_6_1	0.9025	28.4506			0.8145
2	National Mindset			0.817	0.947	
	Q11_1_1	0.8868	36.7491			0.7864
	Q11_2_1	0.9141	44.5225			0.8357
	Q11_3_1	0.9162	52.5999			0.8395
	Q11_4_1	0.8986	39.6549			0.8074
3	Inter- Organizational Networks			0.775	0.945	
	Q17_1_1	0.8559	26.9619			0.7326
	Q17_2_1	0.8471	25.7777			0.7176
	Q17_3_1	0.9333	28.1935			0.8711
	Q17_4_1	0.9331	30.7195			0.8707
	Q17_5_1	0.8263	27.1805			0.6828
4	Education			0.772	0.91	
	Q10_1_1	0.7871	25.1831			0.6196
	Q10_2_1	0.9252	26.6255			0.8559
	Q10_3_1	0.9169	23.6663			0.8408
5	Hostility			0.79	0.919	
	Q20_1_1	0.9037	37.2128			0.8167
	Q20_2_1	0.8547	54.852			0.7305
	Q20_3_1	0.9073	38.4972			0.8231
6	Adaptability			0.702	0.904	
	Q15_1_1	0.799	21.3127			0.6385
	Q15_2_1	0.8365	24.7434			0.6998
	Q15_4_1	0.8514	19.7499			0.725
	Q15_5_1	0.8633	18.709			0.7453
7	Self-Efficacy			0.733	0.916	
	Q13_1_1	0.8217	15.1947			0.6753
	Q13_2_1	0.8521	19.295			0.7262
	Q13_3_1	0.9086	17.6227			0.8256
	Q13_4_1	0.8394	18.6761			0.7047

8	Opportunities			0.883	0.938	
	Q12_1_1	0.9399	86.787			0.8834
	Q12_2_1	0.9399	86.787			0.8834
9	Perception			0.684	0.896	
	Q14_1_1	0.7704	19.7143			0.5936
	Q14_2_1	0.8916	27.3927			0.795
	Q14_3_1	0.8576	26.7221			0.7355
	Q14_4_1	0.7812	17.3595			0.6103
10	Expressiveness			0.911	0.953	
	Q16_1_1	0.9545	112.9245			0.911
	Q16_2_1	0.9545	112.9245			0.911
11	Individual Networking			0.733	0.892	
	Q18_3_1	0.8623	28.7039			0.7435
	Q18_4_1	0.8411	27.7983			0.7074
	Q18_5_1	0.8648	27.0316			0.7479
DV_Formative						
	Firm Performance			0.381	0.746	
	Q35_1	0.3318	11.8367			0.4143
	Q36_1	0.3318	11.2715			0.4126
	NPM_AVG	0.3318	13.953			0.4376
	SGR_AVG	0.3318	21.2274			0.5257
	Empl_AVG	0.3318	4.5872			0.1163

Because we used a single survey to a single sample, we needed to conduct a common method bias test to ensure that the results of our data collection were not biased by this mono-method. To do this, we examined our latent variable correlation matrix for values exceeding 0.900. According to Bagozzi, Yi, & Phillips (1991) this is a strong indication of common method bias. However, the highest correlation we have is 0.396, with an average correlation of .118, and the lowest positive correlation of .013. These values provide sufficient evidence that our data collection was not biased by a single factor due to mono-method.

Structural Model

We tested our structural model using PLS-Graph 3.0, because we had formative factors (Chin, 1998). Significance of paths was estimated using t-statistics produced during bootstrapping, using 2000 resamples (see trimmed model in Figure 2). Next, we performed a mediation analysis using causal and intervening variable methodology (Baron & Kenny, 1986). Mathieu and Taylor (2006) indicate that mediator variables are explanatory mechanisms that shed light on the nature of the relationship that exists between two variables. Mediated paths connecting independent variables (Opp, SC, and SE) to dependent variable (ES) through a mediating variable (ONetw, and INetw) were analyzed to examine the direct, indirect, and total effects. For each of the mediation hypotheses being tested (H3c; H8a to H8d), a model was first run without the mediation paths then with the mediator.

FINDINGS

The estimate path loading results based on PLS, significance, and R² are presented in Figure 2. To avoid errors in statistical conclusion a validity appropriate power level was established (power level at 0.80, and significance level of .05) and used to compute the effect size to guarantee statistically

significant results and control over the possibility of Type I and Type II errors (Hair et al., 2010). The R^2 values show that the number of predictors used in this research for ES (Beta=.133; $p<.05$) and for INETW (Beta=.116; $p<.01$) are sufficient to explain it. We found an acceptable power over .80 (Hair et al., 2010) at 95 percent and 99 percent of confidence, respectively. Hence, the independent factors proposed in the model were sufficient to explain both. However, this was not the case for ONETW (.014) and SE (.012). This may be because in both cases our model considered only one predictive factor for the analysis. Additionally, the f-squared for the effect of SC on INETW indicates a small effect ($f^2=0.84$). HOST, which shows a strong and significant negative effect on ES ($\lambda = -.33$; $p<.01$) at 99 percent of confidence, was included in our model as a control variable. The mediation roles of networking remain as interesting subject details throughout this section (See Figure 2).

Systemic Factors as the Roots to Entrepreneurial Success

This research suggests that systemic factors such as OPP, MIND, and EDU will directly impact ES. Remarkably, our first results show that none of those suggestions (**H1a to H1c**) were sustained. Secondly, this research postulates that a national mindset toward entrepreneurship directly impacts entrepreneurial success (**H2**). Unfortunately, we did not find a significant direct relationship between MIND and ES. Third, the entrepreneurial education received by the entrepreneurs surveyed does not appear to be appropriate to provoke a direct significant effect on ES nor indirectly through the enhancement of entrepreneur SE since the hypotheses **H3a**, **H3b**, and **H3c** were not supported.

All of the abovementioned results provide the foundation for our first finding: Systemic factors in P.R.—entrepreneurial opportunities, national mindset toward entrepreneurship, and entrepreneurial education—are not suitable sources for boosting entrepreneurial success.

The Role of Individual Factors in the Likelihood of Entrepreneurial Success

This paper theorizes that individual factors such as social competence (**H4a**) and self-efficacy (**H5a**) may act as direct driving forces for entrepreneurial success. However, our results show a positive but insignificant direct effect from entrepreneur's SE on ES (**H5a**). Moreover, from all of our hypotheses, **H4b** was the only one to show a significant direct relationship between entrepreneur's SC with INETW ($\lambda = .265$; $p < .01$). Therefore, our second finding is: *Entrepreneur's social competence enhances their individual social networking activities.*

The Mediating Role of Individual Social Networking and Inter-Organizational Networking

This research hypothesizes that individual social networks (**H6**) and inter-organizational networks (**H7**) have a positive direct effect on ES. Surprisingly, our data reveals a significant inverse relationship between INETW and ES ($\lambda = .214$; $p < .05$) and an insignificant but still negative effect between ONETW and ES. Hence, our third finding is: *Individual social networks have a negative effect on entrepreneurial success.*

This paper also suggests that inter-organizational networks mediate the relationship between entrepreneurial opportunities and entrepreneurial success (**H8a**). Additionally, we theorize that individual social networks mediate the relationship between entrepreneurial opportunities (**H8b**), social competence (**H8c**) and self-efficacy (**H8d**) with entrepreneurial success. Our data reveals an indirect relationship between SC and ES through INETW (**H8c**). Yet, as previously discussed, the relationship between INETW with ES is negative. Therefore, our finding number four is: *Entrepreneur's social competence indirectly affects entrepreneurial success through the development of individual social networks. However, even when an individual's social competence enhances their social network, the individual social network diminishes their entrepreneurial success*

DISCUSSION

This study was conducted with entrepreneurs doing business in P.R. who have diverse entrepreneur and firm characteristics. This by itself may account for a wide range of differences between surveyed

groups and the role of each factor under consideration. However, even among those potential differences, the lack of an adequate institutional structure conducive to entrepreneurship is present among all the relevant factors.

A study published by the office of Advocacy of the U.S. Small Business Administration (SBA) (Acs & Szerb 2010), categorized P.R. as a country that should be in the economic development stage known as “innovation-driven.” However, their results showed that P.R.—at number 17 out of 40 countries surveyed—had not exploited its full potential. In the innovation-driven stage, entrepreneurship plays a more important role in increasing economic growth. The SBA report further specified that institutions need to be strengthened before entrepreneurial resources can be deployed to drive innovation. Consequently, our examination expands the abovementioned study by explaining why P.R. has not yet attained the innovation driven stage. It reveals that Puerto Rican institutions are neither suitable nor structured to lead the local economy from an efficiency-driven to an innovation-driven one.

Stevenson and Jarillo (2007) assert that when an opportunity is detected and individuals are willing, the ability to exploit it is vital. In that line of thought, our investigation reveals that the inability of P.R.’s entrepreneurs to exploit opportunities is because of their individual networking barriers. Acs and Szerb (2010) demonstrate that a lack of adequate networking may prevent countries from reaching the next stage of development. In that sense, our findings expand the views of Aponte (2002a), Aponte & Rodríguez (2005), and the 2007 GEM report (Bosma et al., 2008), all of which state that the general population in P.R. recognizes that opportunities exist and want to follow them, but perceive it is not feasible to do so. Thus, we agree that the problem is not the lack of opportunities, and add that networks utilized by entrepreneurs at the individual level may represent a barrier to successfully exploiting those perceived opportunities. Furthermore, the literature states that networking as part of the entrepreneurial attitude may affect the general disposition of a country’s population toward entrepreneurs, entrepreneurship, and business start-ups (Acs & Szerb, 2010); and perceptions about entrepreneurship may affect the supply and demand of national entrepreneurial activities (Bosma et al., 2008). Therefore, our finding that individual social networks have a negative influence on entrepreneurial success may explain the contradiction between the positive perceptions toward entrepreneurship reported by Aponte (2002b) and the lower entrepreneurial activity recounted by the 2007 GEM study. However, the reasons why entrepreneur networks at individual level have a negative impact on their success are beyond the scope of this study.

As previously mentioned, beliefs, values, and preferences will have direct impacts on economic outcomes (Guiso et al., 2006). Nonetheless, our study shows that P.R.’s national mindset toward entrepreneurship is not acting as a source of entrepreneurial success. A positive national mindset toward entrepreneurship is essential to developing adequate collaborations and institutional and industrial structures and to responding to perceived opportunities (Aldrich & Zimmer, 1986); this finding may help to explain why the institutional factors as a whole, are not the most adequate for generating a successful entrepreneurial environment. Changing the mindset of a nation, as Romaguera (2010) states, is an incredibly challenging task that requires changing individual mindsets through a well-designed master plan. However, the *entrepreneurial miracle* is not a mystical product. As Romaguera (2010) exemplifies, it is part of a well-conceived plan of action that primarily requires knowing where we are as a country and where we want to go. It is in this sense that entrepreneurial education in P.R. and internationally seems to be scarce (Aponte & Rodríguez 2005; Corduras-Martinez et al. 2010). Along this line, our study confirms Varela (2011) and Gibb (2011), who show that the entrepreneurial education that has a successful effect on firm performance is the one that can impact entrepreneurs’ competencies, such as self-efficacy, and specific target-groups like new startups and those in the internationalization process. To achieve the desired impact of education, entrepreneurial advocates must determine which groups they want to impact and how. This also requires a blueprint plan with evaluation, measurement, and corrective action.

In conclusion, those with a stake in entrepreneurial success—government administrators, entrepreneurial organizations, business associations, educators, and entrepreneurs—must be aware of all abovementioned discoveries to design a master plan that may lead P.R. to build a successful entrepreneurial environment.

CONTRIBUTION TO THEORY AND PRACTICE

This study examines the impact of systemic and individual factors on entrepreneurial success using the island of P.R. as a case study. Limited scholarly research has been conducted on the entrepreneurial environment in P.R., and examinations of institutional and individual factors together are even scarcer. Moreover, no scholarly work has been conducted that analyzes the mediating roles of individual and inter-organizational networks on the island, making this a groundbreaking investigation.

This research adds to the body of entrepreneurship theory demonstrating the relationships and factors that may facilitate or hinder entrepreneurial success. Our research suggests that a better interconnected entrepreneurial system and stronger individual competencies may be necessary for both practitioners and policy makers to develop a master plan that may contribute to improving the current and prospective entrepreneurial environment. Hence, the results of our research could be used to assist policy makers, entrepreneurial advocacy organizations, and entrepreneurs themselves with carrying out their entrepreneurial goals. Policy makers should be aware of the necessity of designing an integrative system through their policies and programs that help interlock entrepreneurial opportunities and education and a national mindset favorable to entrepreneurship for both current and future generations. Entrepreneurial advocacy organizations, for their part, should continue strengthening the inter-organizational networks that now seem to be very helpful for entrepreneurs, yet at the same time review the overall content of their programs. Entrepreneurs themselves should reevaluate the use and composition of their individual networks as well as their entrepreneurial competencies. In that line, academic institutions and entrepreneurial organizations that have programs geared toward entrepreneurs should be informed about the systemic and individual deficiencies so they may enhance their curriculum design for current and future entrepreneurs.

LIMITATIONS

The size and composition of our sample may limit the generalization of our findings as our sample is specific to entrepreneurs doing business in P.R. A wide variety of entrepreneurs were included in our sample to take into account their diverse individual and firm characteristics. However, the purpose of this study was to examine the systemic and individual factors that may facilitate or hinder entrepreneurial success in P.R., and our results may provide a basis for other countries. Yet, they should be examined bearing in mind each country's individual context. In addition, constructs were measured by respondents who self-reported information about their firms and perceptions and may be inherently biased. That being said, potential bias is considered a minimal risk in this case for the development of practice-relevant theory as respondents were not asked to identify themselves or their organizations (Venkatraman & Ramanujam, 1986).

FUTURE RESEARCH

Our work suggests the need for further research on other possible interactions between institutional and individual factors that may help to develop a successful entrepreneurial environment, such as the mediator role of perceived opportunities or the impact of entrepreneurial policies and programs as moderator. Further research on individual and systemic factors not included in this research is also recommended such as the role of financial capital, more specifically the effect of individuals' savings and the availability of investors. Lastly, based on our results, additional research into the composition, use, and development process of individual social networks, specifically, is advised.

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