IS WHAT YOU SEE WHAT YOU GET? THE IMPACT OF ENTREPRENEURIAL COGNITION AND RESOURCE ACCUMULATION ON NEW VENTURE CREATION

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Abstract

More than half of all attempts to start a business fail. In a quest to help explain the variance in this phenomenon, we develop and test hypotheses related to the role that the objective environment, entrepreneurial perceptions, and start-up activities play in the new venture creation process. Utilizing data from the National Panel Study of Entrepreneurial Dynamics (PSED), we find that perceived market opportunity is significantly associated with the level of start-up activity, whereas the objective dynamism and munificence of the environment or the perceived availability of resources did not have significant effects. Further, we found that a higher number of start-up activities increased the likelihood of successful new venture creation.

Introduction

Approximately 8 percent of the U.S. population took some action to start a new business in 2002 and 10 million individuals are engaged in entrepreneurial activity at any given time (Reynolds et al., 2002). Even though entrepreneurial activity is relatively prevalent and leads to job creation, innovation, and overall economic welfare (Reynolds et al., 2002), prior research suggests that only half of entrepreneurial attempts will likely lead to the starting of a new venture (Duncan & Handler, 1994; Reynolds & White, 1997). Why is it that some nascent entrepreneurs succeed in creating new ventures while others do not? The extant literature offers a number of useful insights, but it is difficult to draw any systematic conclusions due to a number of limitations.

First, the prior research suggests a number of reasons for entrepreneurial success or failure, including characteristics of the entrepreneur, firm, environment, or some combination, but the assumptions and findings differ greatly based on whether an entrepreneur is conceived to be a bricoleur (e.g., Baker, Miner, & Eesley, 2003; Garud & Karnøe, 2003), resource-mobilizer (e.g., Dollinger, 1999; Gladstone & Gladstone, 2002; Stevenson, Roberts, & Grousbeck, 1994), or cognitive agent (e.g., Hill & Levenhagen, 1995; Levenhagen, Porac, & Thomas, 1993). Second, although cognitions and subjective opportunity sets have been recognized as limiting and directing firm behavior and growth (e.g., Penrose, 1959; Weick, 1979), research has typically focused on the constraints imposed by the objective environment to the neglect of entrepreneurial perceptions. The few studies that have focused on perceptions have primarily looked at the cognitive processes of entrepreneurs, rather than the interrelationships of cognition, objective environment, action, and

performance. Finally, studies of entrepreneurial dynamics have historically been hindered by a lack of quality data on the nascent entrepreneurs and the start-up process.

The present paper addresses these gaps by asking the question: how do entrepreneurial perceptions and objective characteristics of the environment influence entrepreneurial action and start-up success? Taking a Schumpeterian (1942) view of entrepreneurship as collective action against the established corporate order, we draw upon the sociological research on collective action (e.g., McAdam, 1999; McAdam, McCarthy, & Zald, 1996; McAdam, Tarrow, & Tilly, 2001) to develop our hypotheses. Our research model distinguishes between objective and perceived environments and, in so doing, answers recent calls for a more cognitive approach to studying entrepreneurship (e.g., Baron, 2004; Pitt, 1998).

Theory and Hypotheses

In sociological research, the political process model suggests that successful collective action depends on the confluence of three factors: political opportunities, mobilizing structures, and framing processes (e.g., McAdam, 1996, 1999; McAdam et al., 1996). Political opportunities refer to the nature of the power distribution between elites and potential movement actors, and are an indication of the vulnerability of the existing regime to contentious attacks (e.g., McAdam, 1996, 1999; McAdam et al., 1996). Mobilizing structures refer to the formal and informal structures that are used to manifest the protest by mobilizing resources and organizing collective action. Finally, framing processes refer to the cognitive and interpretative processes that are used to define opportunities and threats, as well as garner support and form a collective identity (e.g., McAdam, 1996, 1999; McAdam et al., 1996).

Building on the political process model, contentious politics research has emphasized the cognitive and interactive nature of collective action, specifically focusing on the attributions of opportunities and threats, social appropriation of mobilizing structures, and the social construction of the contentious episode (e.g., McAdam, 1999; McAdam et al., 2001). Whereas the political process model posits that a favorable political opportunity structure (e.g., the degree of stability and openness of the political system) provides the impetus for collective action, the contentious politics literature suggests that what is required is merely the *perception* of opportunities and the use of either existing resources or the appropriation of other resources through claim-making activity (e.g., McAdam, 1999; McAdam, at al., 2001).

By explicating how the existence and interplay of opportunities, resource mobilizing structures, and cognitive framing processes lead to collective action, the political process and contentious politics models provide a useful theoretical lens for examining the process of new venture creation. In entrepreneurship research, new venture creation has been conceptualized as the process of *recognizing* opportunities in the market and *exploiting* them through the mobilization of resources (Dew, Velamuri, & Venkataraman, forthcoming; Kirzner, 1979; Shane & Venkataraman, 2000). Little has been said, however, about the objective existence of the opportunity in the environment versus the entrepreneur's subjective perception of the opportunity, or of the actual availability of resources versus the entrepreneur's perception of resource availability. While there would be no need to distinguish between objective and subjective environments if there was perfect correlation between the two, research suggests that this is often not the case (e.g., Boyd, Dess, & Rasheed, 1993; Sutcliffe, 1994). In this paper, we draw on the theories of collective action as well as the extant

entrepreneurship literature to develop and test a model of new venture creation that takes into account both the objective and perceived environment.

We consider two dimensions of the objective environment: dynamism and munificence (Dess & Beard, 1984). Dynamism refers to the level of uncertainty and change in the environment, while munificence refers to the ability of the environment to support sustained growth by providing sufficient resources. In entrepreneurship research, environmental dynamism has been linked with success of entry (e.g., Sandberg & Hofer, 1987) and higher performance (e.g., Eisenhardt & Schoonhoven, 1990) of new firms. Similarly, studies have found that munificence is associated with higher rates of new venture formation (Dean, 1995), new venture growth (Miller & Camp, 1985), higher survival rates (Romanelli, 1989) and greater sales (Bamford, Dean, & McDougall, 2000). But research has rarely considered the mechanisms through which environmental characteristics influence firm creation and performance. We propose that the way in which the nascent entrepreneur perceives the environment will influence his/her level of start-up activity, and these activities, in turn, influence the success of new venture creation. The effects of the objective environment will thus be mediated by the entrepreneur's perceptions. Figure 1 illustrates our research model.

Objective and Perceived Environments

Entrepreneurial opportunities generally arise under conditions of high uncertainty and turbulence (Knight, 1921, Dew et al., forthcoming). For example, changes in technologies or customer needs will serve to create attractive "interstices" (Penrose, 1959) that new firms can exploit. Because of the unpredictability that is introduced into the environmental selection mechanisms in dynamic environments, (e.g., Beard & Dess, 1988; Hannan & Freeman, 1977), new firms will have a greater ability to challenge industry incumbents. Similarly, expanding or contracting political opportunities refer to the extent that the existing regime is susceptible to challenges (e.g., McAdam, 1999); opportunities are fundamentally about the uncertainty regarding the status quo.

The contentious politics literature makes the connection between the objective conditions and perception, stating that environmental uncertainty drives the attributional processes that lead to perceptions of opportunities (e.g., McAdam et al., 2001). We thus propose that environmental dynamism will affect nascent entrepreneurs' perceptions of market opportunity.

Hypothesis 1a. Nascent entrepreneurs will perceive greater market opportunity in environments that are more dynamic.

In a parallel argument, the munificence of the environment will be associated with the extent to which nascent entrepreneurs perceive that they can mobilize resources. Higher growth and profits in an industry are associated with greater availability of resources, as the "size of the pie" increases for all players (Eisenhardt & Schoonhoven, 1990). For example, in munificent environments, nascent entrepreneurs will more readily recognize that financial resources are available through investors and bankers.

Hypothesis 1b. Nascent entrepreneurs will perceive greater existence of resource mobilizing structures in environments that are more munificent.

Entrepreneurial Perceptions and Start-Up Activities

Entrepreneurship theorists have long proposed that cognitive factors such as perception and interpretation play a role in new venture creation (Forbes, 1999). Kirzner (1979), for example, argued that entrepreneurial activity is undertaken by individuals with high levels of "alertness" to opportunity, and Knight (1921) discussed entrepreneurship in terms of different conceptions of risk and opportunity. However, these views have remained relatively underdeveloped and empirically untested (Forbes, 1999). Most cognitive studies in entrepreneurship have focused on entrepreneurs' cognitive processes (e.g., Keh, Foo, & Lim, 2002), rather than the interrelationships among cognition, objective environment, action, and outcomes.

There is some evidence in the social movement literature that perceptions might outweigh objective opportunity conditions. Kurzman (1996), for example, found that the perception of opportunities was enough to counter the lack of strong structural opportunities in inciting the Iranian revolutionary movement between 1977 and 1979. Similarly, in organization studies, it has been noted that while archival measures of objective environmental conditions are appropriate for examining the external constraints on organizations, perceptual measures of the environment are more appropriate for studying organizational actions (Boyd, Dess, & Rasheed, 1993).

If individuals make decisions regarding social movement participation based on subjective assessments (Klandermans, 1984), and if entrepreneurial activity is, indeed, driven by "alertness" to opportunity (Kirzner 1979), nascent entrepreneurs' perceptions of market opportunity will influence the extent to which they engage in activities to start a new venture.

Hypothesis 2a. The greater the perceived market opportunity, the more venture creation activities the nascent entrepreneur will engage in.

A nascent entrepreneur's level of activity will also be affected by his or her perception of whether or not he/she can mobilize the resources required to exploit the opportunity. Research has shown that only when issue advocates feel that they have a reasonable chance of success, will they focus their time, energy, and other resources in an attempt to push forward their proposals (e.g., Checkel, 1993; Kingdon, 1984; May, 1986). In light of the critical role that resources have been shown to play in the new venture creation process (e.g., Vesper, 1990), the perceived availability of resources is likely to significantly affect an entrepreneur's confidence in the success of the venture, and thereby the extent of his/her efforts to start the venture.

Hypothesis 2b. The greater the perceived existence of resource mobilizing structures, the more venture creation activities the nascent entrepreneur will engage in.

Mediating Role of Perceptions

The first two sets of hypotheses link the objective environment with the perceived environment, and the perceived environment with the level of new venture creation activities. Implicitly, the discussion suggests that the objective environment affects new venture creation activities via the entrepreneur's perceptions rather than directly.

In other words, we propose that even if environmental dynamism creates the potential for entrepreneurs to challenge incumbent firms, nascent entrepreneurs are not likely to expend energy and resources in venture creation activities unless they perceive that the opportunity exists. If individuals have heterogeneous expectations and assessments about the environment (e.g., Dew et al., forthcoming; Palich & Bagby, 1995), what is likely to be more important in predicting efforts at venture creation is not actual environmental dynamism, but the perception that opportunities for contestation exist in the market (e.g., McAdam et al., 2001).

Hypothesis 3a. The perceived market opportunity mediates the relationship between the objective dynamism of the environment and the amount of venture creation activities conducted by the nascent entrepreneur.

Similarly, being in a munificent environment is not enough to spur nascent entrepreneurs into action. As is the case with environmental opportunities, individuals have heterogeneous expectations and assessments about both the existence and value of resources (e.g., Dew et al., forthcoming; Kirzner, 1997; Shane & Venkataraman, 2000). The mere presence of environmental munificence is not likely to impact decisions to engage in venture creation activities unless nascent entrepreneurs perceive that the environment contains resources that they can appropriate and utilize for venture creation (e.g., McAdam et al., 2001; McCarthy, 1996). When resource-mobilizing structures are perceived to exist in the environment, nascent entrepreneurs are less likely to be concerned about resource constraints, and thus more apt to engage in venture creation activities, regardless of the resources that they currently control (e.g., Stevenson et al., 1994).

Hypothesis 3b. The perceived existence of resource mobilizing structures mediates the relationship between the objective munificence of the environment and the amount of venture creation activities conducted by the nascent entrepreneur.

Venture Creation Activities and Start-Up Success

The political process model states that collective action arises when issue advocates engage in framing processes to actualize the structural potential created by favorable political opportunity and appropriate mobilizing structures (e.g., McAdam, 1999; McAdam et al., 1996). The contentious politics literature, on the other hand, takes a stance more consistent with the bricolage view of entrepreneurship (e.g., Baker et al., 2003; Garud & Karnøe, 2003), and posits that innovative collective action occurs when actors who perceive opportunities are able to use either existing resources or appropriate other resources to engage in acts of contention (e.g., McAdam, 1999; McAdam et al., 2001). In both these approaches, the key appears to be the actual mobilization of resources through claim-making and other framing processes (e.g., Benford & Snow, 2000; Klandermans, 1984; Snow & Benford, 1992). This link between perception and action is also demonstrated in Thomas, Clark, and Gioia's (1993) study of strategic sensemaking and performance in hospitals; they found that the interpretation of issues as controllable had positive effects on action, and action impacted performance.

In the context of venture creation, the structural and perceived potentials for contention in the market environment are represented by the actual dynamism and munificence in the environment and the perceived market opportunity and resource-mobilizing structures, respectively. When combined with the finding that entrepreneurs make specific types of causal attributions to link

perceived opportunities and internal firm operations (Jenkins & Johnson, 1997), we would expect nascent entrepreneurs to be able to transform the potential for contention into a successful new venture only if they are able to mobilize resources and garner support to exploit perceived opportunities (e.g., Dollinger, 1999; Gladstone & Gladstone, 2002; Stevenson et al., 1994). This is consistent with Carter, Gartner, and Reynolds' (1996) view that successful nascent entrepreneurs tend to undertake more activities to make their business tangible than nascent entrepreneurs who are not successful in starting a new venture.

Hypothesis 4. The more venture creation activities the nascent entrepreneur engages in, the greater the likelihood of start-up success.

Data and Measures

The data utilized for the current investigation were drawn from the phone and mail interviews of nascent entrepreneurs in the ongoing National Panel Study of Entrepreneurial Dynamics (PSED) (see Reynolds, 2000 for detailed methodology and background). We then collected SIC data from the U.S. Census Bureau and the Bureau of Economic Analysis to obtain measures of the objective environment. After screening the survey data, eliminating those with missing data and matching them with SIC data (not all SIC codes were available for the period of time under investigation), we yielded a dataset of 193 nascent entrepreneurs spanning a wide range of industries, primarily in manufacturing sectors.

Objective Environmental Munificence and Dynamism. Following previous studies (e.g., Bamford et al., 2000; Dean, 1995; Dess & Beard, 1984), we measured environmental munificence as the regression slope coefficient divided by the mean value for the regression of time against the value of shipments for the firm's industry (based on four-digit SIC codes). The data on the value of shipments were obtained from the Annual Survey of Manufacturers by the U.S. Census Bureau, special industry reports, and the Bureau of Economic Analysis. The years of data used for our calculations were 1993-1997, a reasonable amount of time preceding the initial survey date of 1998. Environmental dynamism was operationalized as the standard error of the regression slope divided by the mean value of shipments using the same regression models as were used in calculating environmental munificence.

Perceived Market Opportunity and Resource Mobilizing Structures. Perceived market opportunity was measured using two items which examined the nascent entrepreneur's perception of the new firm's ability to attract customers and compete with other firms. Factor scores for these questions were at the .85 level or above with a Cronbach's alpha of .61. Perceived resource mobilizing structures were measured using three questions which examined the nascent entrepreneur's perception of his/her ability to obtain start-up capital, obtain working capital and obtain bank help. Factor scores for these questions were at the .66 level or above with a Cronbach's alpha of .75.

Start-up Activities. The PSED dataset includes information on whether or not the nascent entrepreneurs engaged in a variety of start-up activities. We identified and summed a set of activities to obtain our measure of how many activities the entrepreneur was engaged in. Following Carter, Gartner and Reynolds' (1996), we included the following activities: preparing a business plan, organizing a start-up team, purchasing raw materials or inventory, purchasing or leasing property or equipment, asking other people for funds, the stage of development of the product or service,

working full-time on the business, submitting an application for patent or trademark, hiring employees, and saving money to invest in the business.

Start-up Success. Our dependent variable, start-up success, was drawn from a question which asked the entrepreneur to select the current status of the start-up effort from a variety of descriptive statements. Due to the longitudinal nature of the PSED dataset, we were able to measure our independent variables in period one, and then our dependent variable, start-up success, in periods two and three (data was collected at one-year intervals, Reynolds, 2000). To construct our dichotomous dependent variable, we considered a start-up to be successful if, in either period two or three, the venture was described as an operating business or as an active start-up. A start-up was considered a failure if it was described as inactive, abandoned, or "something else." Including active start-ups in our success category eliminates the problem of defining what distinguishes between an "operating business" and an "active start-up;" different respondents could have a very different understanding of this.

Control Variables. We controlled for the entrepreneur's race, gender, and previous work experience in the industry. For all our measures, detailed measurement items, sources, descriptive statistics, and correlations are available upon request from the authors.

Analysis and Results

To best capture the theoretical interdependencies between our constructs, we used structural equation modeling to test our hypotheses. This procedure allows for a fine-grained analysis of the hypothesized relationships within the context of the entire model; it is a particularly attractive choice when testing mediating variables in that all of the relevant paths are tested simultaneously and complications such as measurement error and feedback are directly incorporated into the model (Baron & Kenny, 1986). We checked the data for violations of the normality assumption as well as for missing data. We used natural logarithms to normalize skewed variables and mean substitution to eliminate missing data (Afifi & Elashoff, 1996; Kline, 1998:89).

Table 1 presents our structural equation model results. Model 1 is our hypothesized model in which perceived market opportunity and perceived existence of resource mobilizing structures mediate between the objective environment and venture creation activities, and venture creation activities have an effect on start-up success. The chi-square is not significant ($\chi^2 = 19.57$, p=.19), indicating that the model fits the data. Also the other goodness-of-fit statistics satisfy the recommendations for model fit. The chi-square divided by the degrees of freedom is 1.31, which is under the suggested ratio of two (Schumacker & Lomax, 1996). The model's adjusted goodness of fit (AGFI) is .94, indicating a good fit with the data (Hoyle, 1995). The goodness of fit index (GFI) is .98, well above the .90 acceptable level (Hair et al., 1995). The root-mean-square residual is a very acceptable .02, indicating a low difference between the observed and model-implied covariances (Kline, 1998). Hotelling's critical N is 301, well over the 200 mark considered acceptable, indicating that the data fits very well with the model (Schumacker & Lomax, 1996).

In hypotheses 1-2 and hypothesis 4, we made predictions about the specific paths in the mediation model (Model 1). To test these hypotheses we examined the path coefficients, and the corresponding critical ratios. In hypothesis 1a, we argued that nascent entrepreneurs will perceive greater market opportunity in dynamic environments. The path coefficient for this is not signifi-

cant (path estimate= -.31, one-tailed p= .24), indicating no support for this hypothesis. In hypothesis 1b, we argued that nascent entrepreneurs will perceive greater existence of resource mobilizing structures in munificent environments. The path coefficient for this is significant at the .10 level (path estimate= .93, one-tailed p= .08), indicating tentative support for this hypothesis.

In hypothesis 2a, we argued that the greater the market opportunity perceived by the entrepreneur, the more venture creation activities the entrepreneur is likely to be engaged in. This path is significant (path estimate= .03, one-tailed p= .04), indicating support for this hypothesis. In hypothesis 2b, we argued that the greater the existence of resource mobilizing structures perceived by the entrepreneur, the more new venture creation activities the entrepreneur is likely to be engaged in. This hypothesis is not supported (path estimate= -.01, one-tailed p= .53).

In hypothesis 4, we argued that the greater the number of activities in which the nascent entrepreneur engages, the higher the likelihood of successful start-up. Our model indicates that this relationship is significant (path estimate= .17, one-tailed p= .02), providing support for our hypothesis.

In hypotheses 3a and 3b, we hypothesized that perceived market opportunity mediates between environmental dynamism and venture creation activities, and that perceived existence of resource mobilizing structures mediates between environmental munificence and venture creation activities, respectively. To test these hypotheses, we first compared two nested models and then looked at the specific relationships between the constructs.

Nested model tests are a means of internally validating a hypothesized model by comparing the chi-squares of models that differ in the number of paths hypothesized; nested models can be derived by adding or deleting paths. Our Model 2 includes two additional paths compared to our hypothesized model: the direct effect of environmental dynamism on venture creation activities and the direct effect of environmental munificence on venture creation activities. If the objective environment has a direct effect on new venture creation activities rather than, or in addition to, the mediated effect we hypothesized, Model 2 would be a better fit than our hypothesized model. When comparing nested models, a significant difference in chi-square indicates that the more complex model provides a better fit with the data (Loehlin, 1987). In our case, the chi-square difference between the two models is .40, which is not significant (P>.10, difference in degrees of freedom = 2), indicating that the hypothesized model is a better fit with the data than Model 2. This is supported by the goodness-of-fit statistics which are marginally better for our hypothesized model than for Model 2.

To test the specific mediation relationships proposed in hypotheses 3a and 3b, we examined the three conditions necessary for mediation (Baron & Kenny, 1986). First, the predictors (environmental dynamism and munificence) must be related to the mediators (perceived market opportunity and perceived existence of resource mobilizing structures). Second, the mediator must be related to the dependent variable (venture creation activities). Third, the predictor variables must be related to the dependent variable, and these relationships should be eliminated or substantially reduced when the mediator is accounted for. Our model does not satisfy these conditions, as there is no significant relationship between environmental dynamism and perceived market opportunity or between perceived existence of resource mobilizing structures and venture creation activities. Fur-

ther, in a separate analysis, we examined the direct effects of environmental munificence and dynamism on venture creation activities without the perceptual variables in the model; neither of these relationships was significant (path estimates= .04 and .06, p=.37 and .30, respectively).

In summary, the nested model test suggests that our hypothesized, fully mediated model fits the data better than the alternative, partial mediation model (Model 2). However, the tests of the specific paths provide no support for our hypotheses 3a and 3b.

Discussion

Our goal in this paper was to apply a collective action framework to the phenomenon of new venture creation in order to gain new insights about the role of entrepreneurial cognition and resources in new venture creation. We drew upon Schumpeterian (1942) and collective action arguments (McAdam, 1999; McAdam et al., 2001) to jointly examine the effects and interrelationships of entrepreneurial cognition, objective environment, venture creation activities, and start-up success. In so doing, we have tried to reconcile some of the arguments put forth by the bricoleur, resource-mobilizer, and cognitive agent approaches to entrepreneurship. Our findings suggest a number of theoretical and practical implications in three key areas: entrepreneurial perceptions, resources, and start-up activities.

First, consistent with the contentious politics model (e.g., McAdam, 1999; McAdam et al., 2001) and recent work in entrepreneurship (e.g., Forbes, 1999; Keh at al., 2002), our findings emphasize the importance of perception in the venture creation process. We found that entrepreneurial perception of market opportunity was significantly related to the number of venture creation activities pursued; these, in turn, were significantly related to start-up success. Our measures of the objective environment were not associated with the level of venture creation activities (nor with the ultimate creation of the new venture). While the extant literature has tended to view entrepreneurial perceptions as mere filters for the underlying objective reality (e.g., Boyd, Dess, & Rasheed, 1993; Sutcliffe, 1994), our findings suggest that that perception is *more* important in predicting start-up success than the objective environment. Indeed, prior studies have found that successful entrepreneurs make specific types of causal attributions between perceived opportunities and internal firm operations (Jenkins & Johnson, 1997); if entrepreneurs operate in enacted environments (e.g., Weick, 1979, 1995), the key task facing an entrepreneur may be to interpret the equivocal environment and articulate a clear and compelling vision to his or her organizational constituents in order to secure the necessary support to enact their vision (Hill & Levenhagen, 1995). Thus, our study provides support for the entrepreneur's role as a cognitive agent (e.g., Hill & Levenhagen, 1995; Levenhagen, Porac, & Thomas, 1993).

Second, we found evidence consistent with the notion of an entrepreneur as a bricoleur (e.g., Baker, Miner, & Eesley, 2003; Garud & Karnøe, 2003). We hypothesized that perceived resource availability would mediate between objective environmental munificence and venture creation activities, but did not obtain the results we expected. While we did find tentative support for the link between environmental munificence and perceived resource availability, we did not find a link between perceived resource availability and new venture creation activities. While this is in contrast with what the collective action literature suggests, our finding supports the view of entrepreneurs as bricoleurs. As bricoleurs, successful entrepreneurs should be able to come up with novel solutions to their resource constraints. Consequently, neither the objective existence nor the per-

ception of resources may be prerequisites to the pursuit of entrepreneurial opportunity (Stevenson, Roberts, & Grousbeck, 1994).

Finally, we found support for the relationship between start-up activities and the successful launch of a new venture. This is consistent with previous work (Carter, Gartner, & Reynolds, 1996) that suggests that nascent entrepreneurs who engage in activities to make their venture more tangible tend to be more successful. Our study has empirically demonstrated that while nascent entrepreneurs might not need to possess resources or perceive resources to be available in order to pursue an opportunity (Stevenson et al., 1994), a new venture will not be created unless sufficient resources can be mobilized through new venture creation activities.

Practical Implications

Normatively, our findings suggest that a new approach may be appropriate for training and supporting potential entrepreneurs. While current methods focus on providing resources to entrepreneurs and easing structural environmental constraints, our findings indicate that a better approach might be to educate entrepreneurs on how to discover opportunities through perceiving the environment in novel ways, through challenging traditional rules and assumptions. For example, more effort could be dedicated to developing entrepreneurial innovation and creativity, as opposed to the more popular approaches that stress the examination of entrepreneurial best practices, conventional industry analysis, and pragmatic business planning. By shifting the focus of entrepreneurial education and programs, nascent entrepreneurs of the future could be better prepared to integrate the different roles of cognitive agent, bricoleur, and resource mobilizer, and thereby be more successful in new venture creation.

Future Directions

The present paper suggests a number of potentially fruitful directions for future research. First, while we have provided a first step towards understanding the complex relationships between the objective environment, entrepreneurial cognitions, venture creation activities, and start-up success, future studies should strive to engage in a finer-grained analysis of these relationships. For example, certain types of cognitive processes may be associated with particular start-up activities. In addition, it may be worthwhile to examine not only the number of venture creation activities, but also the extent, sequencing, and effectiveness of these activities.

A second direction for future research would be to study the objective environment on a different level of analysis. In this study, we used industry-level (4-digit SIC code) measures that were consistent with prior research (e.g., Bamford et al., 2000; Dean, 1995; Dess & Beard, 1984). However, for nascent entrepreneurial ventures, the characteristics of the entrepreneur's local or regional environment may be highly relevant, as well; future studies could include measures of these in addition to industry measures.

Finally, future studies could employ methodologies that would enable a more in-depth examination of entrepreneurial cognitions and behavior. While remarkable in its scope and longitudinal nature, the PSED database is limited by its structured approach. Future studies could, for example, use entrepreneurial narratives (e.g., Pitt, 1998) to examine entrepreneurial perceptions, cognitive processes, and their links to venture creation activities.

In this paper, we have highlighted the important interrelationships between entrepreneurial cognition, objective environment, action, and performance. By drawing on the collective action literature, we constructed and then empirically measured variables previously discussed theoretically, but not adequately tested in entrepreneurship research. Clearly, there is much more to learn in the area of new venture creation; this paper has made a first attempt to empirically demonstrate the role of entrepreneurial cognition versus objective conditions in this process.

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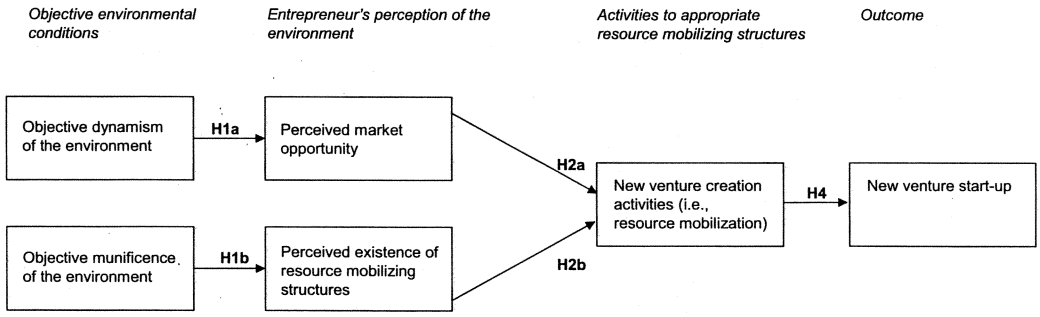
Table 1
Structural Equation Model Results: Path Estimates and Model Statistics

Path		*(1) Hypothesized model (full mediation)*	*(2) Model with direct effects of environment (partial mediation)*
H1a. Objective environmental dynamism → Perceived market opportunity		-.31	-.31
H1b. Objective environmental munificence → Perceived existence of resource mobilizing structures		.93^{+}	.93^{+}
H2a. Perceived market opportunity → Venture creation activities		.03*	.03*
H2b. Perceived existence of resource mobilizing structures → Venture creation activities		-.01	-.01
H4. Venture creation activities → Start-up success		.17*	.17*
Objective environmental dynamism → Venture creation activities			.01
Objective environmental munificence → Venture creation activities			-.07
Race → Perceived market opportunity		.05	.05
Race → Perceived existence of resource mobilizing structures		-.40^{+}	-.40^{+}
Race → Venture creation activities		-.09*	-.09*
Race → Start-up success		-.07*	-.08*
Gender → Perceived market opportunity		.15	.15
Gender → Perceived existence of resource mobilizing structures		-.56	-.56
Gender → Venture creation activities		-.13*	-.12*
Gender → Venture success		.07	.07
Yrs work experience → Perceived market opportunity		-.03	-.03
Yrs work experience → Perceived existence of resource mobilizing structures		.62*	.62*
Yrs work experience → Venture creation activities		.10*	.10*
Yrs work experience → Venture success		.06^{+}	.06^{+}
Model statistics	*Recommended value* (Hair et. al., 1995)		
χ^2		19.57	19.17
degrees of freedom		15	13
χ^2/df	≤ 2.0	1.31	1.48
P	≥ .05	.19	.12
GFI	≥ .90	.98	.98
AGFI	≥ .90	.94	.93
IFI	≥ .90	.95	.93
RMR	Low values (0 = perfect fit)	.02	.03
Hotellings Critical N	≥ 200	301	278
Comparison of Models 1 and 2			
χ^2 difference	.40		
df difference	2		
P	>.10		

*** p < .001; ** p < .01; * p < .05; $^{+}$ p < .10; one-tailed tests.

Figure 1
Hypothesized Mediating Model



H3a: Mediating role of perceived market opportunity

H3b: Mediating role of perceived existence of resource mobilizing structures