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LETTER FROM THE EDITOR

We are extremely pleased to present the *Academy of Entrepreneurship Journal*, an official *journal* of the Academy of Entrepreneurship, Inc. The AOE is an affiliate of the Allied Academies, Inc., a non profit association of scholars whose purpose is to encourage and support the advancement and exchange of knowledge, understanding and teaching throughout the world. The *AEJ* is a principal vehicle for achieving the objectives of the organization. The editorial mission of this journal is to advance the knowledge, understanding, and teaching of entrepreneurship throughout the world. To that end, the journal publishes high quality, theoretical and empirical manuscripts, which advance the entrepreneurship discipline.

The manuscripts contained in this volume have been double blind refereed. The acceptance rate for manuscripts in this issue, 25%, conforms to our editorial policies.

We intend to foster a supportive, mentoring effort which will result in encouraging and supporting writers. We welcome different viewpoints because in differences we find learning; in differences we develop understanding; in differences we gain knowledge and in differences we develop the discipline into a more comprehensive, less esoteric, and dynamic metier.

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MANUSCRIPTS

ORGANIZATIONAL ATTRIBUTES OF NONPROFIT INTRAPRENEURSHIP: AN EMPIRICAL STUDY

Mamdouh Farid, Hofstra University

ABSTRACT

The paper argues that entrepreneurship in an existing organization (intrapreneurship) is the outcome of the interlocking entrepreneurial activities of multiple participants, entrepreneurship is distributed throughout a structure, not mainly the strategic apex, and appropriate organizational settings are required to promote entrepreneurial behavior among organization members. The paper distinguishes among three types/roles of intrapreneurship in the nonprofit sector: social/human service, fund raising, and venture. A set of research questions is tested empirically to assess organizations' environment in fostering entrepreneurship.

Survey result (219 nonprofit managers) shows that nonprofits are likely to develop organizational characteristic attributes of intrapreneurship and that certain organizational characteristics are associated with intrapreneurial behavior as measured by organization members' risk-propensity. Also, the result shows that aspects of organizational culture and management style (more controllable factors) seem to have more influence than the organizational structure and resource aspects (less controllable). Nonprofit managers are advised to establish organizational culture and context of receptive conditions for new ideas and the possibility of failure. This study fills a research gap of how nonprofit organizational characteristics foster entrepreneurship or retard it.

INTRODUCTION

There is a strong argument that entrepreneurship and innovation are essential characteristics of successful nonprofits (e.g., Brinckerhoff, 2000; Hisrich et al, 2000; Kanter, 1999). Nonprofit entrepreneurship is emerging as an innovative approach for dealing with a dynamic and competitive environment. The magnitude of environmental adversity (shrinking resources, competition) and social and economic changes create pressure on these organizations to adopt a model of nonprofit entrepreneurship as "a proactive style of management through which leaders of nonprofit organizations seek to implement change through new organizational and programmatic initiative" (Young, 2001, p. 218).

While the traditional role of nonprofit entrepreneur is about start-up activity and new nonprofit creation, not all entrepreneurial roles fit this mold (Shane & Venkataraman, 2000). Many individuals are attracted to the nonprofit mission of an existing organization and its working environment and to the idea of helping in building or revitalizing a failing organization. Frumkin (2002) asserts that the low rate of nonprofits closure is explained by entrepreneurial activities of individuals who join existing nonprofits. Low rate of nonprofits failure by its turn may contribute to the widely observed expansion of the sector.

The concepts of social entrepreneurship and social enterprise have been rapidly emerging as an integrating theme for entrepreneurship models or roles in achieving social mission (Renz, 2001; Johnson, 2000; Leadbeater, 1997). Social entrepreneurial activities blur the traditional boundaries between nonprofit and for-profit sectors and emphasize hybrid models for social and economic activities (Young, 2002). Broadly defined, "social entrepreneurship" refers to activities encouraging more entrepreneurial approaches in the nonprofit sector in order to increase organizational innovation and effectiveness (Thalhuber, 1998). According to this view, social entrepreneurship is a means by which nonprofits enhance the entrepreneurial abilities of their employees.

Several authors have argued that entrepreneurship in an existing organization is the outcome of the interlocking entrepreneurial activities of multiple participants, and that hospitable organizational settings and environmental opportunities are required for entrepreneurial behavior (e.g., Shane & Venkataraman, 2000; Sykes & Block, 1989).

Thompson et al (2000) note that the process of nonprofit entrepreneurship often happen when entrepreneurial people are linked with the visionary idea, appropriate autonomous organizational setting, and opportunity to act. Current studies of entrepreneurship in an existing organization have focused on the interaction between individuals' characteristics and internal and external environments (e.g., Walley & Taylor, 2002; Busenitz et al, 2000).

This paper focuses on organizational characteristic attributes of intrapreneurship and how they influence nonprofit entrepreneurship. This study assumes that entrepreneurship is distributed throughout a structure, not mainly the strategic apex (the board and CEO/ED). The paper distinguishes between multiple roles/types of intrapreneurial participants and examines organizational characteristics (culture, structure, and management style) that seem to facilitate and develop nonprofit entrepreneurship. Specific research questions are outlined and tested empirically. Organizational setting will be assessed using a survey originally designed to assess an effective organizational intrapreneurial environment in the private sector.

Despite numerous discussions of nonprofit entrepreneurship, the writer is not aware of empirical research that examines organizational characteristics that seem to enhance and facilitate internal entrepreneurship. In their recent literature review of entrepreneurship in the nonprofit sector, Hisrich et al (2000) identify this research gap and have argued for the need to know how nonprofit

organizational characteristics foster entrepreneurship or retard it (p.332). Exploration and research on this area seem to be needed at both of the theoretical and application levels.

NONPROFIT INTRAPRENEURSHIP

Similar to all entrepreneurs, nonprofit entrepreneurs are energetic individuals, with a higher than average tolerance for risk, uncertainty and desire for autonomy, and a willingness to pursue their goals in spite of initial obstacles or lack of resources values (Waddock and Post, 1991; Doig and Hargrove, 1987).

As illustrated in the literature, the concept of intrapreneurship is almost synonymous with innovation initiated and implemented by employees (e.g., Ucbasaran et al, 2001; Zahara & Pearce, 1994). Intrapreneur has also been referred to as the "in-house entrepreneur" (Pinchot, 1985), the "idea manager" (Tropman, 1984), and the "corporate entrepreneur" (Carrier, 1996).

Nonprofit intrapreneurship may emerge spontaneously if the situation permits. Burgelman (1983) found that intrapreneurship consists of autonomous behavior by employees that emerge as a result of belief in mission, personal inclination, and internal opportunity (in terms of availability of untapped resources or organizational structure opportunity). On their study of intrepreneurship in nonprofits, Neilson et al (1985) and Quinn et al (1988) characterize this role as being involving promoting innovations in a rapidly than slowly evolving environment. "In these situations, it is often not the boss, but someone in an odd corner of the organization — a champion for some technology or strategic issue — who takes on the entrepreneurial role" (Quinn et al (1988, p.531). While these two last studies focus mainly on large nonprofits, this sort of entrepreneurial behavior is found to be observed as well in medium and small sized organizations (e.g., Carrier, 1996; Zahara & Pearce, 1994).

Also, Nielsen et al (1985) found that part of the intrapreneurial internal role is to resolve conflict between structural differentiation and integration in the organization. They cite for-profit, nonprofit and public organization cases that show this conflict can be solved by means of intrapreneurial activity. In this case, the intrapreneurial role is to resolve conflict between the need for integration of the total organization and the need for flexibility/innovation of different programs/units and to make sure that secondary activities satisfy or are integrated into the organization's mission and strategic needs. This can be an important function if the nonprofits have commercial activities. This integration function also imply that some intrapreneurial roles required the skills or the involvement necessary for the administration.

Ucbasaran et al (2001) have argued "… entrepreneurship is not necessarily a single-action event. Entrepreneurs, among themselves, may display differing characteristics and patterns of behaviour, which warrants research into different types of entrepreneurs" (p.61). Some of these intraprenuerial roles are briefly outlined below.

NONPROFIT INTRAPRENEURSHIP ROLES/TYPES

In comparison to the private sector, nonprofit entrepreneurs seem to be motivated more by a wider range of personal intrinsic needs and social desires. Thompson et al (2000) note that the motivations of the nonprofit entrepreneurs are not homogeneous and go beyond profit.

Young (1985) studied 11 human service organizations with a focus on entrepreneurship. He found that motivations vary widely to include the fulfillment of strong social, religious beliefs or causes, the artistic-like urges to build and create, the seeking of status or inner satisfaction from professional achievement and accomplishment, the psychological need to test oneself and prove that one is capable of carrying off a major project or program, the pursuit of innate desires to help, teach, or serve the less fortunate members of society, the intellectual satisfaction from shaping and implementing new ideas, the achievement of personal recognition, power, or social status, the desire for autonomy and independence (to be one's own boss), the maternal-like satisfaction of parenting an enterprise and seeing it grow, and the material security and gain.

The literature shows that nonprofit entrepreneurs are found to assume a variety of types or roles for a wide range of personal and organizational reasons. The next section attempts to distinguish between three nonprofit intrapreneurship roles or types. Differences in terms of personal characteristics and purpose for change/innovation are briefly emphasized in order to sharpen the distinction. The purpose of the following discussion is not to develop a typology but rather to build the argument that entrepreneurship is distributed throughout a structure and that nonprofits are entrepreneurial and innovative when they display attributes that facilitate entrepreneurial characteristics and behavior of the organization's members.

THE SOCIAL/HUMAN SERVICE ROLE

Social entrepreneurs are creative thinkers, even more than other entrepreneurs. They create a new social concept or a new way of providing an existing human service. The social or human service entrepreneurial role involves coping effectively with environmental complexity and the dynamics of social changes and customers' needs (e.g., Heimovics et al, 1993) and it requires the ability to deal with a "complex social" problem by converting it into a specific social value "vision" (Waddock and Post, 1991).

THE FUND RAISING/CHARITY ROLE

While chief executives and trustees are usually involved in fund raising activities, the nonprofit organization is still in need of a fund raising or philanthropy entrepreneur (Reis & Clohesy, 2001). With a new idea or concept, the fund raising entrepreneur is able to raise public consciousness and marshal support. This is especially important in a time of social crisis or

economic down turn, or when the range of options is smaller due to organizational structure and charitable purpose constraints.

As characterized in the literature, this role seems to require artistic and creative types of individuals who are motivated by human/social crisis situations (e.g., Reis & Clohesy, 2001). In their study of popular fund raising cases (e.g., Hands Across America and Partnership for Drug Free America), Waddock and Post (1991) also found that leading fund raisers act to perform boundary-spanning and coalition-building activities. Fundraisers look for new resources and networks and they provide knowledge of external conditions and valuable advisement services to the organization.

If we accept the idea that, in comparison to other types, fund raiser entrepreneurs may not be required to have the skills or the involvement necessary for the administration, then it is safe to suggest that this is a role that fits volunteers very well.

THE COMMERCIAL VENTURE ROLE

This role is similar to the venture strategy in terms of revenue-producing activities. Hofer and Sandberg (1987) characterize successful venture entrepreneurs as having a detailed knowledge of the key success factors in their businesses and the ability to identify potential venture opportunities. Nonprofits need this type of entrepreneur when it is necessary to raise revenue that can be used to finance their nonprofit operations. Federal and state funding for nonprofits decreased 23% in the 1980s (Salamon, 1989) and continued to decline in the 1990s (Mcleod, 1997). Hisrich et al (2000) consider commercial venture as an important category of entrepreneurial activity in the nonprofit sector.

Also, as explained in the literature, a venture entrepreneur is the person who has innovation and growth as main objectives (e.g., Carland et al, l984). However, the venture expansion of a nonprofit organization should be gradual in order to avoid disruption of core operations, threats to their legal and tax status, or risks to their charitable and financial conditions (Dees, 1998). The commercial entrepreneurial problem includes how to locate and exploit new opportunities while simultaneously maintaining a firm core business/mission.

The next section deals with organizational characteristics that are found to be important to foster intrapreneurship. Research issues are also developed.

ORGANIZATIONAL CHARACTERISTICS NEEDED TO FOSTER INTRAPRENEURSHIP

Entrepreneurial organizations are those which are willing to accept uncertainty and the possibility of failure for the purpose of gaining benefit from innovations (Firestenberg, 1986). Research has attempted to identify internal organizational factors that facilitate entrepreneurs' personal characteristics, such as risk-taking propensity, internal locus of control, and desire for

autonomy and motivate them to engage in innovation and entrepreneurship. While the published research contains a wide variety of these factors, some consistent elements are found to include the elements of management practices, organizational resources and competencies, organizational culture, organizational structure, and organizational strategy (e.g., Busenitz et al, 2003). Subsumed under each of these elements are assortments of organizational policies and procedures that may be established by management. Given the breadth of the concepts of organizational cultural and structure, scholars have addressed them from different perspectives.

Some of the nonprofit organizational characteristics that are assumed to be a good potential environment to foster entrepreneurship include employees' participation (Durst & Newell, 2001), an adaptive and learning internal environment (Weeler, 2000), and a flat and flexible structure with a culture of trust and creativity (Leadbeater, 1997). In her study of human service organizations and their adaptation strategies for the current nonprofit environment, Alexander (2000) found that the hierarchical model of traditional command and control has limited applicability because nonprofits are usually smaller, leadership has a weaker authority, and the composition of employees is by large professionally licensed, highly mobile and peopled by volunteers. Management style is more participative and decentralized.

In addition, the growing interest in the process and practice of corporate entrepreneurship or intrapreneurship in the private sector has produced several frameworks in fostering entrepreneurship (e.g., Covin & Miles, 1999; Hornsby et al, 1993; Covin & Slevin, 1991). Covin and Slevin (1991) propose a conceptual model of a corporate entrepreneurship process that includes individual, organizational and environmental factors and their interactions. Kuratko et al (1990) present a multi-dimensional scale, to assess a hospitable working environment, that includes the factors of management support for innovation, flexible organizational structure, risk taking encouragement, and time availability to pursue ideas, and resource availability. This last framework is adopted in the current study.

RESEARCH QUESTIONS

Literature in the nonprofit sector has recognized the existence of entrepreneurship as part of life or intrinsic force in the nonprofit sector (e.g., Drayton, 2002; Frumkin, 2002; Hisrich et al, 2000). For example, Frumkin (2002) argues that nonprofits are vehicles to bring about change for entrepreneurs. Hisrich et al (2000) assert that social and human service organizations are publicly supported and explicitly designated with their own tax code for the purpose of bringing about change and innovation (p.323). Young (2001) cites the following developments in the nonprofit sector as evidence of entrepreneurial effort : (1) over the last two decades, the nonprofit segment of the American economy has grown rapidly in comparison to the government and business, which suggests the presence of considerable entrepreneurial effort, (2) the nonprofit segment shows a steady entry of new organizations and is populated largely by young organizations, which reflects

nonprofit entrepreneurial behavior in addressing unsatisfied social, health, and other needs, forming their own organizations, mobilizing resources, and introducing new programs and services, and (3) missions of many nonprofits are framed in terms of introducing change, which exhibits the entrepreneurial character. That said, we suspect that nonprofit organizations in general would exhibit receptive entrepreneurial characteristics.

Furthermore, using risk-taking propensity of employees in the public sector as a dependent variable, Moon (1999) found that flat structure, low level of formalization, low level of centralization, and high level of organizational trust between members and leaders tend to promote a high level of risk-taking propensity and entrepreneurship of organization members. Hisrich et al (1996) found that risk-taking and persistence are two very important personal characteristics associated with innovation in the nonprofit sector.

Considering the reviewed literature, at least two propositions are possible:

1. With regard to the responsiveness of nonprofits to encourage employees' entrepreneurship, nonprofits, in part due to a range of flexible structure, procedures and policies and autonomy, are likely to develop organizational attributes of intrapreneurship.
2. Nonprofit organizations that are characterized by more organizational attributes of intrapreneurship are likely to promote more risk-taking behavior than nonprofits with fewer characteristics.

However, due to the exploratory nature of this study, analyses were structured around the following fundamental research questions rather than specific hypotheses:

1. What are relevant organizational characteristics that foster eployees' intrapreneurship?
2. How do members of nonprofits respond to these characteristics?
3. To what extent do organizational characteristics explain the variance in the members' intrapreneurship behavior?

The paper will next explore these research questions. Results and implications will then be discussed.

METHODS

To gather a sample, we looked in the National Directory of Nonprofit Organizations, published by the Taft Group, in the New York State. Hospitals, schools, and religious organizations

were not included in the study. Each company selected was assigned a number starting with one. The first 457 companies with even numbers were selected.

The instrument used in this study is the intrapreneurial assessment instrument (IAI) developed by Kuratko et al (1990) to identify the dimensional structure of organizations in terms of its ability to support intrapreneurial activity. This instrument focuses on factors which are essential in developing a perceived entrepreneurial environment for managers and employees. We considered this survey since it is already been used in the private sector and it is comparatively applicable as will to smaller firms (e.g., Covin & Slevin, 1991). This is an important consideration since nonprofits on the average are smaller than for-profit organizations (Kushner & Poole, 1996)

The original IAI consists of 28 descriptive statements constructed around five factors: (1) management support (recognition and encouragement of innovation/innovators, etc.), (2) organizational structure (cross functional teams, unrestricted communication, flexible job description, etc.), (3) risk-taking encouragement and tolerance for failure (risk-takers are recognized and encouraged, mistakes are permitted, etc), (4) time availability (e.g., slack time to develop ideas and deal with long term problems), and (5) reward (for risk-takers) and resource availability (for new ideas/projects, etc). Respondents were asked to indicate how descriptive of their work areas or the organization they feel the items are on a five-point Likert scale (1 = Not at all descriptive, 5 = Very descriptive).

Companies selected were mailed three questionnaires each, with return envelops, to the executive director. Executive directors were asked to fill one of the questionnaires and to distribute the other two to top- and lower-level management. In their review of studies of entrepreneurial firms, Lyon et al (2000) find that management perceptions of firm-level variables such as strategy and structure are often used and that several studies often rely on the responses of a single key player to represent the views of the whole firm.

We received 247 responses out of total 1371 questionnaires for a response rate of 18.02 percent. Missing data reduced the usable sample size to 219. The components of managerial positions in the final sample include 72 (32.8%) president/CEO/ED, 65 (29.9%) V.P./director/top management, 43 (19.6%) associate director/middle level, and 39 (17.8%) program manager/counselor/first level. Average seniority with the current organization is 7 years. Range of organization size is between 5 to 3033 full time employees and the average is 96. Almost sixty percent (59.8%) described their organizations' mission as social and human service and forty percent (40.2%) as other types of services (art/culture/other services).

Fifty-nine percent (59.4%) of the sample reported they had previously worked for business firms before they moved to their current nonprofit organizations. Almost thirty-nine percent (38.7%) of these individuals had experienced a salary decrease as a result of joining nonprofits. Thirty percent (29.8%) had experienced a salary increase.

Table 1 shows other demographic characteristics. Table 1 also shows the sample responses to statements regarding how they get involved with the current organization.

Table 1	
Sample Characteristics/Profile (n=219) Demographic	Percent
Female	53.3
Male	46.7
College degree	40.2
Master degree	46.1
Full time	92.7
How did you get involved with the current organization?	Percent [1]
Because of the working environment	66.7
Because of perceived social need	63.9
Belief in the mission	35.6
Because of financial compensation factors	21.0
To start an organization that centers on personal beliefs	8.7
Others [2]	29.2
[1] Respondents answer more than one category	
[2] Many reasons including commuting and convenient working hours.	

In this study, we attempted to determine the impact of organizational setting on entrepreneurship in terms of individuals' risk-propensity behavior. As depicted in the literature, the propensity for risk taking is an essential element in the entrepreneurship process and it refers to a variety of financial, social and psychological risk associated with the pursuit of opportunities, change, new ideas or innovations (e.g., Tropman, 1989; Quinn, 1985).

RESULTS

One way to deal with the first question (What are relevant organizational characteristics that foster employees' intrapreneurship?) is to examine the factor structure of the IAI instrument and compare it with Kuratko et al's (1990) findings in the private sector using the same instrument. The results of the principle components factor analysis, based on a Varimax rotation, suggested the hypothesized five factors.

The resulting factors, item abbreviations, factor loading, and alpha reliability are in Table 2. The analysis was done by using SPSSx. Similar procedures were followed in Kuratko et al's (1990) original study. Our resulting factors are risk-taking encouragement (five items), management support for innovation (five items), flexible organizational structure (three items), time availability (three items), and reward and resource availability (two items).

Essentially, one management support item was integrated into the risk taking encouragement factor and one structure item was integrated into the management support factor. Total number of items was reduced from 28 to 18. The dimension of reward and resource availability does not include many of the items that are in the original survey. It includes only two items ("lack of funding" and "problems with the budget"). The rest of the items were reduced from the analysis.

Kuratko, et al's (1990) original study suggests a three-factor solution instead of the hypothesized five factors scale. Their three-factor solution includes management support (nine items), organizational structure (six items), and reward and resource availability (six items). According to their result, the time availability factor was integrated into rewards and resource availability while the risk-taking factor was integrated into the management support factor. Their number of items was reduced from 28 to 21. Our resulting five factors (Table 2) provide empirical evidence as to the existence of certain structural dimensions that are proposed to enhance entrepreneurship.

To analyze organizational characteristics' effects (How do members of nonprofits respond to these characteristics? To what extent do organizational characteristics explain the variance in the members' intrapreneurship?), a least squares regression analysis was conducted. There were six independent variables that include: (1) Risk Taking Encouragement, (2) Management Support, (3) Organizational Structure, (4) Time Availability, (5) Reward and Resource Availability, and (6) Employees' Participation. The first five measures were composite indices created from factor analysis listed in Table 2. Employees' participation measure was added since the original scale (Kuratko et al, 1990) does not include participation as a relevant aspect of organizational setting. Several studies have reported greater emphasis by nonprofits on providing opportunities for employees' participation (Durst and Newell 2001; Montes, 1997; Siciliano, 1997). Our survey asked respondents to indicate their agreement or disagreement, from Not at all descriptive (1) to Very descriptive (5), on the following statement "Employees participate in most decisions that directly impact them".

The dependent variable was a behavior statement regarding organization members' propensity for risk taking. Respondents were asked to indicate their agreement or disagreement, from Not at all descriptive (1) to Very descriptive (5), on the following statement "Most employees in this organization are not afraid to take risks". A similar statement was used by Moon (1999) as a dependent variable. Table 3 lists the independent and dependent variables and their mean, standard deviation, and correlation coefficients.

Table 4 displays the result of the regression model. The R^2 is .225 and the factors of risk-taking encouragement (p-value = 0.00), participation (p-value = 0.00), and management support (p-value = 0.098) are statistically significant. The three other factors of organizational structure, time availability, and availability of resources are not significant.

Table 2	
Rotated factor structure (n=219)	Factor Loading
Scale 1: Risk Taking Encouragement (scale alpha = 0.7261)	
1.Mistakes are rarely given second chances*	0.72
2.Calculated risks are encouraged	0.49
3.Mistakes are defined as failure*	0.72
4.Mistakes are defined as learning experiences	0.64
5.Ideas are not fully developed by original innovators*	0.54
Scale 2: Management Support (scale alpha = 0.7573)	
1.Self appointed innovators receive encouragement	0.55
2.Senior managers encourage bending rules	0.53
3.Top managers are known for their experience with innovation	0.73
4.Top management provide sponsorship for innovative projects	0.79
5.Members generate new ideas without regard for crossing functional boundaries	0.55
Scale 3: Organizational Structure (scale alpha = 0.5988)	
1.Job descriptions are of strong concern*	0.67
2.Defining turf is important*	0.75
3.Slack time is given to develop ideas	0.60
Scale 4: Time Availability (scale alpha = 0.6284)	
1.Jobs are too structured to think about wider problems*	0.69
2.Always working with time constraints on job*	0.74
3.Workers find time for long term problem solving	0.55
Scale 5: Reward and Resource Availability (scale alpha = 0.7041)	
1.Ideas often die because of lack of funding*	0.81
2.Budgeting process leads to problems with continued funding for new project*	0.77
* Score is reversed because item is stated in a negative terms	

The results in tables 3 and 4 shows that nonprofits that are characterized by more organizational attributes of entrepreneurship are likely to promote more risk-taking behavior than nonprofits with fewer characteristics.

Table 3: Descriptive statistics and correlations of all the variables (n=219)

Variables	Mean	s.d	1	2	3	4	5	6
1.Participation	3.68	1.23						
2.Risk Taking	3.78	.81	.239**					
3.Management Support	3.46	.84	.320**	.494**				
4.Organizational Structure	3.03	.98	.264**	.451**	.419**			
5.Time Availability	3.13	1.04	.140*	.332**	.251**	.415**		
6..Resource Availability	2.52	1.21	.135*	.161*	.234**	.331**	.161*	
7.Risk Propensity	3.68	1.16	.342**	.375**	.331**	.262**	.148*	.137*

*p .05 **p .01

Table 4: Least Squares Regression Results for Risk-Propensity (n=219)

Independent Variables	Coefficient	p-value
Constant	0.917	.002
Participation	0.222	.0003
Risk Taking	0.362	.0008
Management Support	0.169	.098
Organizational Structure	0.074	ns
Time Availability	-0.072	ns
Resource Availability	-0.003	ns
R^2	.225	
Adjusted R^2	.203	
F (Total equation)	10.235	.0000

DISCUSSION

The results show that if nonprofits develop organizational characteristic attributes of intrapreneurship, these attributes are likely to promote entrepreneurial behavior. The result is, in fact, more positive than reported by Kuratko et al (1990). Our result shows more support for the dimensions of risk-taking and time availability. Table 3 shows the factors of participation, risk taking encouragement and management support for innovation as having above average values. There is no reason to doubt the sampling procedure that followed by the study. The response rate was not high (almost 18%), however the responding organizations were quite diverse in terms of mission, size, and locale.

The regression model (table 4) suggests that the model is modestly able to explain a little over 20 percent (adjusted $R^2 = .203$) of members' risk-propensity (the dependent variable). Tables 3 and 4 show that the factors of tolerance for mistakes or risk-taking encouragement, employees' participation, and management support for innovation can be significant predictors of employees' risk propensity by themselves and in combination with the other factors (McNabb, 2002). Overall, these three factors are more organizational culture than structure aspects.

Table 4 shows that organizational structure and time and resource availability are not significant. These factors are still important by themselves (table 3), but not in combination with the other factors (McNabb, 2002). Table 3 shows moderate-to-high correlations among all these variables.

Individual characteristics may lead entrepreneurial behavior if the internal conditions facilitate this behavior. Entrepreneurs' personal characteristics may also be enforced by the existence of an internal hospitable environment. Scholars argue that, similar to other entrepreneurs, nonprofit entrepreneurs are energetic individuals, with a higher than average internal locus of control, need for achievement, tolerance for risk, and desire for autonomy and a willingness to pursue their goals in spite of initial obstacles or lack of resources values (e.g., Diaz & Rodriguez, 2003; Waddock & Post, 1991). While they were not tested in the current research, personal characteristics such as tolerance for risk, achievement motivation, locus of control are found to be related to risk-taking behavior (e.g., Gatewood et al, 1995; McClelland, 1987). For example, participation and flexible job design are expected to empower employees and encourage their desire for autonomy and internal locus of control.

The next section will attempt to integrate the earlier discussion of intrapreneurial roles/types with the empirical part of the study.

LINKAGE BETWEEN ENTREPRENEURIAL TYPES/ROLES AND CONTEXT

The earlier part of the paper argues that nonprofit entrepreneurship is typically the result of the interlocking entrepreneurial activities of multiple participants and that the roles of entrepreneurs

are to provide the required diversity. The paper differentiates between social/human service, commercial venture, and fund raising intrapreneurships. As argued by Moon (1999) and Hornsby et al (1993), dimensions of organizational characteristics are each significant in different ways to the entrepreneurs' characteristics (e.g., risk-taking, locus of control, autonomy) and behavior.

Some linkages or testable relationships between entrepreneurial types/roles, personal characteristics and context are proposed here to guide future research based on our framework. The following are illustrations that partially use some of our empirical results.

For example, in a situation where a nonprofit needs to develop a new commercial venture (venture entrepreneurship) or where it is necessary to raise funds that can be used to finance their nonprofit operation (fund raising entrepreneurship) , high levels of management support (in terms of encouraging self-appointed innovators, innovators to bend rules and rigid procedures, and employees to generate new ideas without regard for crossing departmental or functional boundaries) and tolerance for mistakes (in terms of allowing calculated risk and that mistakes are defined as learning experiences) are suggested. Individuals with high tolerance for uncertainty and/or internal locus of control are expected to be involved in risk-taking and entrepreneurial activity.

Another illustration is that in a situation where a nonprofit deals with a "complex social" problem, it is recommended that low levels of job descriptions, high levels of slack times and high levels of employees' participation be provided to employees. These will enhance developing ideas and will give the social and human entrepreneur more room to plan to target innovation areas. Individuals with high desire for autonomy and tolerance for uncertainty are expected to be involved in risk-taking and entrepreneurial activity.

CONCLUSION

This paper attempts to identify nonprofit internal environment that facilitates and motivates employees to engage in entrepreneurship. The result of the empirical data shows that the elements of risk-taking encouragement, employees' participation, management support for innovation, structure, and time and resource availabilities are related to entrepreneurship as measured by employees' risk-taking propensity. This should be important to management since change and innovation are associated with risk propensity. Several researchers have asserted that individual differences in the willingness to bear risk influence the decision to exploit entrepreneurial opportunities (e.g., Shane & Venkataraman, 2000).

In our nonprofits sample, the organizational culture aspects seem to have more direct impact on entrepreneurship than the organizational structure and resource aspects. While management may not be able to change organizational structure or to control its resources, they may have more control over organizational culture and management style by establishing, by means of policies and procedures, of receptive conditions for new ideas and the possibility of failure. This should attract skilled and talented volunteers and staff. As Fisher (2004) noted, the maturing of baby-boom

business people is a huge potential energy boost for nonprofit and the real question is weather nonprofits are ready for the influx of new talents. Table 2 shows the sample response to the question of how they get involved with current organization. Respondents selected the reason of the working environment (almost 67%) more than other reasons, including organization mission.

Given the diversity among entrepreneurs, perhaps future studies should try to investigate whether certain organizational contexts are more associated with or encouraging a specific type or role and to establish linkages between types and various contexts, on the one hand, and measures of organizational performance, on the other.

Some testable statements that include personal characteristics, organizational characteristics, intrapreneurial types/roles were previously offered to guide future research based on our framework. This study did not measure actual organizational performance. Entrepreneurship was measured perceptually in terms of risk propensity. While this should increase our prediction of the final outcome, it is recommended that future research may need to include both long-term measures (outcomes) in addition to short-term measures (internal perspective). Examples of outcomes include organizational growth (increased revenue and resources, expansion to new location, etc.) and social impact (increased the number of client served, expansion of services, enhance client satisfaction, etc.) (Kaplan, 2001; Alexander, 2000).

It is important to acknowledge certain limitations to this study. The study applies an instrument (IAI) that was based on one firm in the private sector to our sample of many and different types of nonprofits. While the study added the characteristic of employees' participation as another dimension obviously more research is needed to identify more nonprofit-relevant entrepreneurial contexts.

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THE IMPACT OF HIGH PERFORMANCE WORK SYSTEM PRACTICES ON SMALL MANUFACTURER PERFORMANCE

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ABSTRACT

This paper examines the effect of both quality operations and high performance work system (HPWS) practices on firm performance for 1200 small manufacturers wanting to market their products to a major mass merchandiser. All of these firms participated in a supplier evaluation program that assessed both their management and product characteristics. Performance for each firm in this study was categorized as either low, average, or high by comparing the stated or observed performance on each evaluation criteria to the minimum completion level. Our study found that both quality operations and HPWS practices significantly predicted performance among low, average, and high performing firms. We conclude that small firm managers should investigate and adopt the appropriate quality and human resources practices which will enable their firms to perform at higher levels.

INTRODUCTION

The bulk of small firm performance research focuses on factors such as TQM and financial management in leading to success. In fact, quite a bit of research has found strong ties between quality management and small firm performance over the last 10 to 15 years. Comparatively, little research has been directed at examining the role of human resource practices in small firm performance. Becker and Huselid's (1998) work on high-performance work systems (HPWS) suggests that high quality HR practices will have a positive effect on the financial performance of a firm. Small firm HRM research in this area has met with mixed results, and little agreement exists on a common canon of HPWS practices used by small businesses today.

This paper examines the effect of both quality operations and HPWS practices on small manufacturer performance among firms wishing to market their retail products nationally. First, we briefly examine a sample of both quality operations and human resource management research as they relate to small firm success. Then we describe the results of a study of almost 1700 small U.S.

manufacturers and their firm and product characteristics. Finally, we offer suggestions for small firms wanting to use HPWS practices to improve performance.

BACKGROUND AND HYPOTHESES

Quality Operations Research

Performance research for small firms has focused on operational issues such as quality management, quality control, and continuous improvement. For manufacturers, a formalized quality management program tends to be an important success factor (Roth & Miller, 1992); however, smaller firms may use much more informal means of quality assessment, such as inspection rather than sophisticated statistical techniques, because these firms lack skilled personnel (Abdul-Aziz, Chan, & Metcalfe, 2000). For example, Abdul-Aziz, Chan and Metcalfe (2000) noted that use of an in-process inspection system (along with pre- and post-process inspection) was critical for success. Yusof and Aspinwall (2000) found that quality practices such as process improvement, statistical process control, and employee involvement were all characteristics of successful smaller manufacturers.

Small firms also tend to place an emphasis on quality control rather than the quality assurance prized by large manufacturing firms (Sun & Cheng, 2002). They may measure customer satisfaction with traditional methods including customer surveys, along with non-traditional approaches such as counting the number of customer complaints and counting the number of items returned under warranty (Kuratko, Goodale, & Hornsby, 2001). Another qualitative control technique, first-piece approval, reflects the tendency of firms to inspect the initial output of their production cycles.

While large firms use training to support continuous improvement, smaller firms tend to rely on traditional incentive and suggestion programs (Sun & Cheng, 2002). Yusof and Aspinwall (2000) found that few small firms use continuous improvement tools and techniques. In addition, employees may not recognize the difference between continuous improvement and productivity improvement programs; they tend to be wary of efforts which may result in the loss of jobs (Townsend & Gebhardt, 1990). Even managers may be disillusioned by improvement efforts, as the results may diminish over time (Lillrank, Shani, & Lindberg, 2001). Wilkes and Dale (1998) suggest that small manufacturers need continuous improvement training and a development guide that outlines critical practices.

Human Resource Management Research

Much research on human resource practices has focused on Becker and Huselid's (1998) concept of a "high-performance work system" (HPWS), which suggests that the use of strategic

human resource practices can identify organizations with better developed HRM philosophies. These practices include such things as validated selection tests, written HRM plans, employee training, job descriptions and analysis, individual performance and compensation plans, employee participation in decision making, employee participation in TQM programs, alignment of HRM system with business mission and strategy, and experienced and effective management and leadership. Becker and Huselid (1998) theorized that firms using these types of practices would have higher overall performance levels than those that did not employ these practices. They advised against a "best practices" approach and instead suggested that a firm pay attention to HRM techniques that create a synergistic effect. Becker, Huselid, Pickus, and Spratt (1997) found that adoption of an HPWS increased shareholder value and market value per employee significantly.

The limited research on small business HR practices seems to support the ideas of Becker and Huselid (1998). Capelli and Crocker-Hefter (1996) suggest that a list of "universal" HPWS practices is inappropriate and that effective HRM systems need to be adapted to the firm's needs. Wagar (1998) also argues against a "best practices" approach in small firm HRM research. In fact, research tends to focus on the most commonly adopted HR practices, but in reality there seems to be a lack of agreement on which practices are most beneficial for small businesses.

Bacon, Ackers, Storey, and Coates (1996) surveyed more than 500 small British firms and found that most employed such practices as delegation, work teams, performance appraisals, job flexibility, and information sharing. However, few used psychometric testing or quality circles, and few linked HR practices to their mission. Golbar and Deshpande (1997) compared the HR practices of large and small firms and found very few differences between them. Firms were just as likely to encourage employee participation and use job training and performance-based pay, although the extent of these practices might vary due to the size of the business. Wagar (1998) found that a majority of sampled small firms had formal performance appraisal systems, used orientation programs, and shared business information with employees, but they did not have HR departments. Kaman, McCarthy, Gulbro, and Tucker (2001) surveyed HR professionals in small American service firms and found that most used formal performance appraisals, job descriptions, and flexible scheduling, but few used formal selection processes, policy handbooks, and universally available training.

Becker and Huselid's theory that a HPWS leads to better firm performance has met with mixed reviews in small business research. Hornsby and Kuratko (2003) cited multiple studies that linked effective HRM practices to some level of success, and their own research indicated that small firm executives consider HRM issues of critical importance. Barling, Kelloway, and Iverson (2003) surveyed Australian industrial relations employees on the amount of training, task variety, and autonomy found on their jobs. They found that these high quality work practices had a direct effect on job satisfaction and indirect effect on reducing job injuries. However, Chandler and McEvoy (2000) found no direct effect on performance from HR practices. Instead, they found that HR practices moderated TQM efforts which, in turn, positively affected performance.

In this paper, we argue that both quality operations and high performance work practices will have a positive effect on firm performance for small manufacturers. Therefore, we offer the following hypotheses:

H1: Quality operations practices will have a positive impact on firm performance for small manufacturers.

H2: HPWS practices will have a positive impact on firm performance for small manufacturers above and beyond the contribution made by quality operations practices.

SAMPLE, DATA COLLECTION, AND MEASURES

This study draws on data collected from a supplier evaluation program developed at a regional Midwest university for screening small manufacturers as potential vendors to a major mass merchandiser. All of the participating firms in this study were independently-owned manufacturers who were not dominant in their industry. Of 2113 potential suppliers, 1690 (80.0 percent) completed both the firm self-assessment and product evaluation portions of the assessment process. Nineteen percent (321 firms) were female-owned and managed. The respondents were from all states, and racial, ethnic and other minority information were not kept as part of the main database. All firms supplied products exclusively for consumer purchase. Products varied in suggested retail price from inexpensive and/or point-of-purchase to major purchase levels.

Success for a small manufacturer in this program meant that the firm was able to get its product onto the mass merchandiser's retail shelves. The supplier evaluation program consisted of two appraisals: an assessment of the firm's management practices and an assessment of its submitted product (see the Appendix for specific items). Each product was either forwarded or not forwarded to a mass merchandiser buyer for consideration based upon the results of these evaluations. The final decision as to whether the retailer accepted the forwarded product for sale on its shelves was left entirely to the retailer.

Firm Assessment

The firm assessment instrument, which evaluated the management practices of potential suppliers, was a self-administered tool for use by program participants. The 34 items were based on prior research conclusions and discussion with potential buyers from the mass merchandiser industry. The items generally fell into the areas of marketing management, strategic management, production operations, and financial management.

The firm self-assessment items were structured with evaluation statements and multiple levels of measurement scored from one to five points. For example, in the firm self-assessment instrument, owners were asked to rate their marketing planning with the following item:

Marketing Plan. Does your firm have a marketing plan for this project?

(1) We do not need a marketing plan for this project.
(2) We have an informal, unwritten marketing plan.
(3) We have an informal, written plan.
(4) A formal, written marketing plan is in progress.
(5) We have a formal, written marketing plan.

Each of the 34 items in the self-assessment instrument used this five-point scoring method. The three-point (or middle) response was the minimum performance level acceptable to retail buyers.

Product Evaluation

The product evaluation instrument consisted of 41 items based on the Product Innovation Evaluation System (PIES) developed at the University of Oregon (Udell, O'Neill, & Baker, 1977). Product areas included societal impact, business risk, demand analysis, market acceptance, competitive capabilities, and experience and strategy. An independent, trained evaluator completed this portion of the assessment process. The independent evaluator was typically a current or former retail buyer or an experienced small firm owner with a retail background. The evaluator's role was to assess the potential of the product in the mass retail market.

The product evaluation instrument was similar in structure to the firm self-assessment. Products were judged objectively on a five-point ordinal scale using specific achievement levels rather than a sliding subjective scale. For example, the independent evaluator rated each product using items like the one below:

Functional Feasibility. In terms of its intended functions, will it do what it is intended to do? This product:

(1) is not sound; cannot be made to work.
(2) won't work now, but might be modified.
(3) will work, but major changes might be needed.
(4) will work, but minor changes might be needed.
(5) will work; no changes necessary.

Each of the 41 items in the product evaluation instrument used this five-point scoring method. The three-point (or middle) response was the minimum performance level acceptable to retail buyers.

Quality Operations and HPWS Variables

For this paper, two variables were created from the firm assessment instrument. The first variable, quality operations (QUALOP), aggregated the following items from the productions

operations area: product testing, quality control, first-piece approval, in-process inspection, and continuous improvement. All of these items represent success factors in the quality operations literature, particularly for small manufacturers. The second variable, high performance work system (HPWS), combined items from the strategic management area including mission statement, job description, employee input, management experience, business plan, and employee autonomy. While our model did not include all of Huselid's HPWS variables, the five used here were deemed appropriate by prior research for firms like the small manufacturers in our sample.

Performance Levels

The performance levels for firms in this study were created by comparing a firm's stated or observed performance on each evaluation criteria from both the firm assessment and product evaluation instruments. The performance was judged as poor if it did not meet the minimum completion level established for the specific criterion, and it was judged superior if it exceeded that same minimum level. Poor performance merited a "fault" for the firm, and excellent performance merited a "strength." "Faults" and "strengths" were then added up for each firm in both management and product areas.

A firm was judged to be a low performance firm if its "faults" exceeded the population mean by more than one standard deviation and if its total "strengths" were less than one standard deviation below the population mean. High performance firms were those that had significantly more "strengths" and fewer "faults." The mean number of "faults" for management practices was 8.54 (s.d. = 5.88) and for product characteristics was 7.54 (4.43). The mean number of "strengths" for management practices was 16.84 (7.11) and for product characteristics was 20.08 (5.30). Average performance firms were those firms that were not judged as either high or low performers. Only firms whose evaluation criteria had been completed intact (no missing data) were used in this procedure. Of the original 1690 program participants, 1219 (72.1%) met this criterion. Using this classification system, 108 firms (8.9%) were classified as low performers, 688 (56.4%) as average performers, and 128 (10.5%) as high performers. The remaining 295 (24.2%) of the 1219 firms were classified as mixed performers because of combined low, average and high performance levels, but because of the lack of clarity in their performance level, these firms were classified as average performers in the discriminant analyses. These 1219 were the only firms examined in this study. The results are shown in Table 1.

RESULTS

We first ran a correlation analysis to determine the relationships between the dependent and independent variables. We found highly significant correlations between each of the independent variables and the dependent variable, firm performance, and this result led us to believe that a

regression analysis may be a useful next step in testing our hypotheses. The results of the correlation analysis are shown in Table 2 below.

Table 1: Categorization of Firms by Performance

		Combined Strengths (Above Expected Performance)			
		Low (> 1 SD below mean)	Average	High (> 1 SD above mean)	Total
Combined Faults (Below Expected Performance)	High (> 1 SD	108	83	0	191
	above mean)	(8.9%)	(6.8%)	(0.0%)	(15.7%)
	Average	37	688	118	843
		(3.0%)	(56.4%)	(9.7%)	(69.2%)
	Low (> 1 SD	0	57	128	185
	below mean)	(0.0%)	(4.7%)	(10.5%)	(15.2%)
	Total	145	828	246	1219
		(11.9%)	(67.9%)	(20.2%)	(100.00%)

Table 2: Correlation Analysis Results

	Quality Operations	Human Resources	Interaction
	(QUALOP)	(HPWS)	(QUALOP*HPWS)
Human Resources (HPWS)	.564		
Interaction (QUALOP*HPWS)	.893	.859	
Firm Performance	.488	.505	.557

Note: All correlations are significant at the $p < .001$ level. N = 1219.

Prior research suggested that quality operations was likely to have the most significant effect on firm performance. The effect of a high performance work system was considered to be an auxiliary effect. Therefore, we used hierarchical regression to test the impact of self-reported quality operations practices on firm performance followed by HPWS practices and by the interaction of quality operations and HPWS practices. Table 3 shows that a firm's focus on quality operations practices accounts for 32.5 percent of the variance, while a focus on HPWS practices added another

12 percent to the predictive value of the model. The interaction of QUALOP and HPWS was not shown to be significant.

Table 3: Hierarchical Regression Analysis Results

	R	Adjusted R-Square	R-Square Change	Sign. of F Change
QUALOP	.571	.325	.326	.000
QUALOP, HPWS	.667	.444	.120	.000
QUALOP, HPWS & QUALOP*HPWS	.667	.444	.000	.472

Note: Dependent variable is Firm Performance. N = 1219.

In previous research on the performance of these small manufacturers, we found that the regression model sometimes predicted one level of performance better than another. Specifically, in Jones, Knotts, and Udell (2004), the model was able to predict failure but not success for these firms. Therefore, we decided to use discriminant analysis to see if this effect was occurring again with the firm performance levels. Only QUALOP and HPWS were used as independent variables since the regression determined that the interaction variable had insignificant predictive value. Table 4 shows the results of this discriminant analysis.

Table 4: Discriminant Analysis: Classification Results

	Predicted Low Performers	Predicted Average Performers	Predicted High Performers	Total
Actual Low Performers	88	19	1	108
	(81.5%)	(17.6%)	(0.9%)	
Actual Average Performers	209	527	247	983
	(21.3%)	(53.6%)	(25.1%)	
Actual High Performers	0	16	112	128
	(0.0%)	(12.5%)	(87.5%)	
Total	297	562	360	
	(24.4%)	(46.1%)	(29.5%)	

Note: The chi-square for this procedure was 9.536 ($p < .002$). N = 1219

Random chance assignment of a firm to any one of the three performance categories (low, average, high) would seem to be 33 percent. As Table 4 shows, the independent variables (QUALOP and HPWS) correctly classified both low and high performers between 80 and 90 percent of the time. Even moderate performers were correctly classified more than 50 percent of the time. It would appear that the regression model, while having better success with low and high performers, is robust at all levels.

DISCUSSION AND CONCLUSIONS

Prior research suggested that both quality operations and HPWS practices would have a positive impact on firm performance. Using a sample of over 1200 small manufacturers, our study verified these conclusions. Our first hypothesis suggested that quality operations practices alone would have a significant effect on firm performance. The correlation of this independent variable with the dependent variable, firm performance, was highly significant. Using hierarchical regression, we found that this variable alone accounted for almost one third of the variance in the dependent variable. Our second hypothesis suggested that HPWS practices would have a significant effect on firm performance, above and beyond that contributed by operations. Once again, the correlation of HPWS practices to firm performance was highly significant, and in the same hierarchical regression analysis, it was found to contribute another 12 percent towards the prediction of variance. These results provide support for both hypotheses.

One conclusion that can be drawn from these results is that both quality operations and HPWS practices have a significant and positive effect on firm performance for small manufacturers. This may suggest that firms could make significant improvements in performance by simply adopting both of these sets of practices.

Another conclusion from this study relates to the discriminant analysis, where both quality operations and HPWS practices correctly classified all levels of firms. Low and high performers were correctly classified with a better than 80 percent accuracy rate. This could suggest that high performers were definitely those manufacturers using both sets of practices, while low performers were those firms that used neither or that poorly used the systems that they had in place. Moderate performers, while significantly well-predicted, were much harder to classify with this model. Perhaps it is this level of performer that uses either quality operations or HPWS practices but not both, or perhaps these manufacturers do a mediocre job of using both systems. Additionally, it could be possible that moderate performers have adopted a "best practices" approach that Becker and Huselid (1998) warned against, or they simply may not have chosen the best HR practices that fit their needs.

Huselid (2003) called for more research in the area of HR strategy to help small firms understand the "science and practice" of human resource techniques within their field. This paper focused on a select set of HPWS that proved successful at predicting performance levels for small

manufacturers in the retail marketplace. While small firms may be limited in their resources, the HPWS practices examined in this study (mission statement, job description, employee input, management experience, business plan, and employee autonomy) seem rather inexpensive when compared with the more highly developed systems found in much larger firms. The results of this study would suggest that while inexpensive, these practices have the potential of significantly increasing small firm performance for small manufacturers.

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Appendix: Firm Assessment and Product Evaluation Items

Firm Self-Assessment Items
Marketing Management:
- Marketing Plan
- Marketing Organization
- Price Determination
- Market Demand
- Competitive Product Analysis
- Promotional Plan
- Company Orientation

Strategic Management:
- Mission Statement
- Job Descriptions
- Employee Input
- Management Experience
- Quality
- Firm's Primary Objective
- Use of Consultants
- Business Plan
- Board of Directors
- Board Involvement

Production Operations:
- Product Testing
- Research & Development
- Manufacturing Technology
- Management Planning & Control Systems
- Delivery Schedule Reliability
- Quality Control Measures
- Maintenance Program
- Cost Containment
- First Piece Approval
- In-Process Inspection
- Continuous Improvement Program

Financial Management:
- Cash Flow
- Budgetary Planning Cycle
- Budget Update Cycle
- Cost Accounting

Accounting
- Financial Planning

Product Evaluation Items
Societal Impact:
- Legality
- Safety
- Environmental Impact
- Societal Impact

Business Risk:
- Functional Feasibility
- Production Feasibility
- Commercialization Stage
- Investment Costs
- Payback Period
- Profitability
- Marketing Research
- Research & Development

Demand Analysis:
- Potential Market
- Potential Sales
- Trend of Demand
- Stability of Demand
- Product Life Cycle
- Product Line Potential

Market Acceptance:
- Use Pattern Compatibility
- Learning
- Need
- Dependence
- Visibility
- Promotion
- Distribution
- Service

Competitive Capabilities:
- Appearance
- Function
- Durability
- Price
- Existing Competition
- New Competition
- Protection

Experience & Strategy:
- Technology Transfer
- New Venture
- Marketing Experience
- Technical Experience
- Financial Experience and Resources
- Management & Production Experience
- Channels: Promotional Requirements
- Channels: Sales & Selling Price

ANOTHER LOOK AT BUSINESS ACCESSION AND SEPARATION RATES IN NON-METROPOLITAN AREAS

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ABSTRACT

Rural areas are generally considered to be challenging for entrepreneurs seeking to begin new businesses due to factors such as lower levels of economic development, scarcity of affordable professional services, and smaller markets. However, some studies have found that small business owners find their locations promote, rather than hinder, success. A previous study of Ohio counties determined that although business accession rates (the number of new businesses compared to the number of current businesses) were higher in metropolitan areas, separation rates (the number of business terminations compared to the number of current businesses) were equal to or even significantly lower in non-metropolitan counties. This study seeks to provide further insight into this issue by examining accession and separation rates in metropolitan and non-metropolitan counties of Mississippi. A greater understanding of these rates may be especially important to lenders or investors assessing the risk of failure of new businesses in rural areas as well as to advisors seeking to improve the economic health of non-metropolitan areas.

INTRODUCTION

Urban and rural areas can present very different business environments due to factors such as social networks and demographics as well as geography (Beggs, Haines & Hurlbert, 1996; Frazier & Niehm, 2004). Rural areas are generally considered to be challenging for entrepreneurs due to factors such as lower levels of economic development, scarcity of affordable professional services, and smaller markets (Chrisman, Gatewood, & Donlevy, 2002; Fendley & Christenson, 1989; Kale, 1989; Lin, Buss, & Popovich, 1990; Mueller, 1988; Osborne, 1987; Small Business Administration [SBA], 2001; Tigges & Green, 1994; Trucker and Lockhart, 1989). However, in some studies (Robinson, 2001; Sullivan, Scannell, Wang, & Halbrendt, 2000; Tosterod & Habbershon, 1992) small business owners found benefits to being located in a rural area.

This study further examines this issue by comparing the accession rates (new business births compared to the number of active businesses) and separation rates (business deaths compared to the

number of active businesses) in metropolitan and non-metropolitan counties of Mississippi (Mississippi Employment Security Commission, 2005). These are then further analyzed by Rural-urban Continuum Codes (RUCC) determined by the Economics Research Service (ERS). The disadvantages common to non-metro areas may lead to lower accession rates and higher separation rates. However, if there is an advantage to operating a business in a non-metropolitan area, the opposite may be found.

The following section briefly reviews the factors that promote or discourage entrepreneurship in rural areas, leading to the study's examination of business accession and separation rates. As will be discussed in the methodology section, the terms *rural* and *non-metropolitan* are not technically synonymous under the specific definitions created by the U.S. Census Bureau (2002), but in this study these terms will be used interchangeably, as will *urban* and *metropolitan*.

CHALLENGES FOR RURAL BUSINESSES

Many factors would seem to discourage rural entrepreneurship and economic development. In fact, the SBA (1999) reports that between 1990 and 1995, all industries did better in urban than in rural areas. Non-metropolitan areas naturally have lower populations, leading to smaller markets. In addition to less aggregate buying power, rural residents also have lower levels of individual buying power (Barkley, 1993; Kean, Gaskill, Letstritz, & Jasper, 1998). Combining poorer markets with more expensive or more difficult to find resources would likely decrease the chance for a successful business start and stay in operation.

Location may influence business starts and success in that geographic region is one determinant of the availability of needed resources (Chrisman et al., 1992). Rural areas often offer fewer support services and less-developed transportation and electronic infrastructures which could hinder non-metropolitan businesses attempting internet-based businesses as well as brick and mortar operations as the cost and quality of telecommunications becomes increasingly important to businesses (Corman, Lussier, & Nolan, 1996; Freshwater, 1998; Mueller, 1988; SBA, 2001). Essential business services such as accounting, banking, advertising, and legal services may be both difficult to find and more expensive in rural areas (Corman et al., 1996; Fendley & Christenson, 1989; Frazier & Niehm, 2004; Freshwater, 1998; Mueller, 1988; Osborne, 1987; SBA, 2001; Trucker & Lockhart, 1989). In addition, the trend of small banks merging with larger ones less willing to makes loans to small businesses combined with biases against non-urban areas make it more difficult for small rural businesses to gain financing (Chrisman et al., 2002; Green & McNamara, 1987; SBA, 2001). This could logically lead to a lack of business starts or increased business deaths.

Several studies, however, have determined that rural businesses do not necessarily lag behind their metropolitan counterparts in terms of venture creation. Lin and associates (1990) found no significant differences between rural and urban areas when comparing the rates at which new firms

and jobs were created. Taking population into consideration, Clark and James (1992) found the rate of business ownership to be higher in non-metropolitan areas. In a study examining accession and separation rates in Ohio, it was found that non-metropolitan businesses had significantly lower business accession rates, but also tended to have lower separation rates, suggesting that although rural residents were less likely to begin businesses, they were equally or even less likely to go out of business (Robinson, 2002).

Studying new business owners in South Dakota, Tosterud and Habbershon (1992) found that the majority of these people had started their businesses in order remain in their chosen location, which, in most cases, was less than 30 miles from where they had spent their entire lives. These business owners believed their chances of success were as great there as in any other location. Likewise, an Iowa study showed that rural business owners, 62% of whom were Iowa natives, viewed their location as advantageous (Tosterud & Habberson, 1992). Similarly, a study involving women micro-business owners in Pennsylvania found that the participants did not view their rural location as disadvantageous, but were instead were encouraged by the lower costs, established social networks and a decreased sense of risk (Robinson, 2001).

Social networks have been found to have a positive influence on business start-ups and business success in rural areas (Cooke & Morgan, 1998; Frazier & Niehm, 2004; Jenssen & Keonig, 2002; McQuaid, 1997; Sullivan et al., 2000). Effective networking can play an important part in business success, and this may be especially true in tightly-knit rural communities that are by nature different from urban settings. Given these findings, it can be inferred that business starts in rural areas are likely to be influenced by the potential business owners' ideas about their areas and non-financial objectives such as the desire to remain in a given region. Coupled with an already established network of acquaintances, potential business owners in rural areas may be encouraged to start businesses leading to higher business accession rates.

Traditionally, rural areas have been considered economically challenged due to a variety of problems associated with non-metro locations, but several recent studies have concluded differently. If rural residents view their location as providing lower risk of failure (Robinson, 2001) or start their own businesses in order to provide employment for themselves when suitable jobs are not available (Tosterud & Habbershon, 1992), accession rates may exceed those in metro counties. If there is indeed a lower risk of failure or non-metro business owners are more willing to endure hardships in order to remain in business, separation rates would be expected to be lower in non-metro counties. However, if the economic challenges of starting and succeeding in a rural business outweigh the benefits, business separations rates are likely to be higher. Considering that rural businesses may have a more difficult time acquiring financing (SBA, 2001) it is important to determine if there are differences between these rates. If non-metropolitan businesses are less likely to terminate, financial backers may find they are missing an important segment. In addition, obtaining a better understanding of business start and failure rates would be important to organizations that provide support to entrepreneurs and small business owners so they can provide appropriate aid.

METHODOLOGY, DEFINITIONS AND LIMITATIONS

The study of business failures is complicated by the lack of consistent nationwide data regarding business terminations. To be truly effective, a measure of business failure should be simple, objective, relevant and reliable (Watson & Everett, 1993). The lack of a reliable measure for determining business failure is a significant problem in understanding and preventing small business failure (Cochran, 1981). It is especially difficult to locate failure rate data that are broken down by an area's degree of rurality.

This study examines data provided by the Mississippi Employment Security Commission (2005). Coverage under this program is required of most employer businesses including all those employing any number of workers for 20 different weeks in a year or paying wages of $1,500 during one quarter and most non-profit organizations. A cross reference with U.S. Census (2005) data shows that almost all employer firms are included in the Mississippi Employment Security Commission program. Non-employers are also eligible for this system, and account for approximately 9% of total firms that are in this program (Mississippi Employment Security Commission). However, this accounts for only about 3% of all Mississippi non-employer companies (U. S. Census, 2005). Almost 87% of covered firms have 0-19 employees, and 97% have 0-99 employees, meaning the vast majority of businesses are quite small.

Under this system, a business birth is recorded when an employer establishes coverage for the first time or if an account is reopened. A business death occurs when a business discontinues insurance coverage and there is no successor. The data in this study are therefore limited in that they do not include all businesses (non-employers) within the state, and a business could exist without subscribing to coverage. However, given the lack of other appropriate data on business failures, they are useful for providing additional insight into business start and failure rates that might not otherwise be available.

The total number of businesses in a given year (e.g. 2000) was actually the number of active businesses in the program in the fourth quarter of the previous year (1999), but will be referred to as the total number of businesses for that year (2000). Business accession rates were calculated by dividing the number of new businesses (births) in a given year by the total number of active businesses (or more specifically, the number from the fourth quarter of the previous year). Business separation rates were calculated in similar fashion using business deaths. These rates made it possible to make a fair comparison between metropolitan and non-metropolitan areas despite the difference in the number of counties and businesses.

As stated previously, there are technical differences between the terms *metropolitan* and *urban* and between *non-metropolitan* and *rural*. Urban areas are not only those that the U. S. Census Bureau has designated as urban, but also those areas outside officially urbanized areas yet are home to 2,500 or more people. Territory not classified as urban is considered rural. Likewise, all areas outside metropolitan areas (minimum population of 50,000 or classified by the Census Bureau as

an urbanized area) are designated as non-metropolitan. Because metro areas include surrounding counties with close social and economic ties to a central metro county, counties with relatively lower population densities may be designated as metropolitan if they are near metro centers. Given these definitions, both metro and non-metro counties generally include areas that are rural and urban (U.S. Census Bureau, 2002).

The Rural-urban Continuum Code, shown in Table 1, uses these definitions to classify each county with an ordinal rank from 1 - 9, with 1 being the most urban and 9 being the most rural (ERS, 2003). Counties from 1 - 3 are classified as metropolitan counties, while 4 - 9 are non-metropolitan. Under this system, 75 counties were classified as non-metropolitan while only 7 were designated metropolitan, but these metro counties had much higher average numbers of businesses. To make meaningful comparisons possible, this study primarily examines percentage data rather than the absolute number of businesses.

Table 1: Rural-urban Continuum Codes

N	Code	Description
		Metropolitan counties
1	1	counties in metro areas with a population of 1 million or more
6	2	counties in metro areas with a population of 250, 000 - 1 million
0	3	counties in metro areas with a population less than 250.000
		Non-metropolitan counties
1	4	with an urban population of 20, 000 or more, adjacent to a metro area
7	5	with an urban population of 20, 000 or more, non adjacent to a metro area
13	6	with an urban population of 2,500 to 19,999, adjacent to a metro area
30	7	with an urban population of 2, 500 to 19, 999, not adjacent to a metro area
5	8	completely rural or have an urban population of less than 2, 500, adjacent to a metro area
19	9	completely rural or have an urban population of less than 2,500

Source: ERS (2003)

Because only one county each falls in two of the RUCC categories (RUCC 1 and 4), statistical analyses were also performed with collapsed categories that grouped together categories 1 and 2, 4 and 5, 6 and 7, and 8 and 9. However, these analyses provided no further insight into the relationships between a county's degree of rurality and business accession and separation rates. Therefore, only the results using the original RUCC designed by the ERS are reported here.

RESULTS AND ANALYSIS

The total number of businesses in metro and non-metro counties and in each RUCC category is shown in Table 2. Although there are more than ten times as many non-metro as metro counties, the latter account for approximately one-third of the businesses included in this study and have almost five times the mean number of businesses per county. This makes intuitive sense given higher populations in metro areas. Because accession and separation rates are based on comparisons with total businesses, the ratio of total businesses to population was also determined for each county. No significant differences were found between metro and non-metro counties or between RUCC groups.

Table 2: Total Businesses in Mississippi Counties by Metro/Non-metro Status and RUCC

2000	**Non-metro**	**Metro**	**1**	**2**	**4**	**5**	**6**	**7**	**8**	**9**
Total	38932	20445								
Mean	519	2,921	1727	3120	1234	1,629	420	549	178	183
Min	44	763	---	763	---	860	264	202	91	44
Max	2,266	6,903	---	6,903	---	2,266	709	1069	278	319
Std dev	452	2,078	---	2,203	---	452	113	239	72	65
2001										
Total	38424	20490								
Mean	512	2927	1,766	3,121	1228	1595	417	544	177	179
Min	41	774	---	774	---	838	275	197	83	41
Max	2,229	6,782	---	6,782	---	2,229	720	1043	287	314
Std dev	444	2,024	---	2,146	---	440	114	236	77	64
2002										
Total	37,559	20,183								
Mean	501	2,883	1,775	3,068	1,191	1,553	410	532	177	176
Min	39	762	---	762	---	807	258	181	89	39
Max	2,169	6,559	---	6,559	---	2,169	726	999	280	301
Std dev	432	1,943	---	2,060	---	433	118	231	72	62

Business accession and separation rates by metro/non-metro status and by RUCC are shown in Tables 3, 4, 5 and 6. The results of correlation analysis between these rates and metropolitan/non-metropolitan status are shown in Table 7. Significant differences were found between the accession rates of metro and non-metro counties, with non-metro counties lagging behind their metro counterparts each year.

Table 3: Mean Business Accession Rates in Metro/Non-metro Mississippi Counties						
	2000	Std dev	2001	Std dev	2002	Std dev
-Non-metro Counties	7.87%	1.91	7.46%	1.91	7.55%	2.40
-Metro Counties	11.08%	2.31	9.90%	1.64	9.70%	1.77
t	-3.561		-3.696		-2.96	
Significance	.010*		.007*		.018*	

Table 4: Mean Business Accession Rates by RUCC								
2000	1	2	4	5	6	7	8	9
Mean	15.75	10.3	7.94	7.79	8.88	7.88	6.83	7.49
Min	---	8.79	---	6.14	4.71	4.87	4.4	3.20
Max	---	11.66	---	8.78	11.75	10.20	10.07	11.45
Std dev	---	1.15	---	0.90	2.14	1.18	2.79	2.55
F	4.674							
Sig.	.000*							
2001	1	2	4	5	6	7	8	9
Mean	12.23	9.52	8.47	6.95	8.19	7.44	8.57	6.86
Min	---	7.78	---	5.61	4.19	4.84	6.02	2.44
Max	---	11.11	---	8.34	11.18	9.42	10.84	12.7
Std dev	---	1.41	---	0.94	1.78	1.28	2.01	2.79
F	2.764							
Sig.	.013*							
2002	1	2	4	5	6	7	8	9
Mean	11.32	9.43	6.38	7.51	8.75	7.48	9.32	6.47
Min	---	6.98	---	5.86	5.84	2.33	2.87	2.56
Max	---	11.34	---	8.91	12.56	12.15	12.5	12.35
Std dev	---	1.78	---	1.07	2.05	2.01	4.01	2.68
F	2.499							
Sig.	.023*							

The gaps of 3.21%, 2.44% and 2.15% mean that rural businesses were started at a rate of only 71-78% of those in urban counties. Accession rates were correlated (Spearman's rho) at a significant level with metro/non-metro status and RUCC in all three years. The negative correlation with RUCC suggests there is an association between rurality and business births in that accession

rates tend to decrease as counties become more rural (become higher in the RUCC order). Examining the counties in greater detail, the sole county in RUCC 1 (DeSoto County) has the highest accession and separation rates. Considering this, additional statistical tests were performed on filtered data that excluded this county, but these did not result in major changes.

Table 5: Business Separation Rates in Mississippi Counties

Mean	2000	Std dev	2001	Std dev	2002	Std dev
-Non-metro Counties	8.88%	1.90	8.41%	2.20	7.55%	1.49
-Metro Counties	9.53%	1.41	9.51%	0.91	8.69%	1.18
	-1.124		-2.565		-2.386	
Significance	.293		.023*		.044*	

Table 6: Business Separate Rates by RUCC

2000	1	2	4	5	6	7	8	9
Mean	11.52	9.19	7.86	8.29	9.30	8.42	8.04	9.80
Min	---	7.95	---	7.46	6.28	5.00	4.44	6.11
Max	---	11.14	---	9.19	12.50	11.40	14.42	13.64
Std dev	---	1.21	---	0.62	1.73	1.46	3.96	1.99
F	1.720							
Sig.	.117							
2001	1	2	4	5	6	7	8	9
Mean	11.10	9.25	9.28	8.39	8.62	8.41	10.25	7.75
Min	---	8.54	---	7.66	5.87	4.67	6.21	2.44
Max	---	10.10	---	9.26	11.18	12.18	15.66	15.87
Std dev	---	0.64	---	0.54	1.59	1.63	3.72	3.05
F	1.183							
Sig.	.323							
2002	1	2	4	5	6	7	8	9
Mean	10.70	8.36	8.48	7.40	8.72	7.38	7.13	7.15
Min	---	6.98	---	5.86	5.84	2.33	2.87	9.56
Max	---	11.34	---	8.91	12.56	12.15	12.50	12.35
Std dev	---	0.85	---	0.58	1.59	1.05	1.83	1.86
F	2.686							
Sig.	.016*							

Table 7: Correlation of Accession and Separate Rates with Metro/Non-metro Status and RUCC				
	Metro/Non-metro		RUCC	
	Corr.	Sig.	Corr.	Sig.
2000 Accession Rate	-.373	.001*	-0.322	.003*
2001 Accession Rate	-.325	.003*	-.251	.023*
2002 Accession Rate	-.261	.018*	-.287	.009*
2000 Separation Rate	-.108	.335	.098	0.383
2001 Separation Rate	-.189	.089	-.215	0.052
2002 Separation Rate	-0.217	0.051	-0.25	.024*

In addition to lower accession rates, non-metro counties were also found to have significantly lower separation rates in 2001 and 2002. In 2002, separation rates were negatively correlated at a significant level, again suggesting that as the ordinal variable RUCC increases, the rates tend to decrease. Together, these results seem to indicate that businesses in non-metro counties were less likely to be started, but once companies were formed, they were more likely (or no less likely) to remain in business.

To gain a better understanding of failure rates, the percentage of business deaths that occurred less than one year after birth were compared (see Table 8). In 2000, non-metro businesses were more likely than metro business to survive the first year. The results of ANOVA testing for RUCC showed no statistical significant differences between groups despite the RUCC 8 counties'average rate of almost 7 percentage points lower than the next lowest county group. Within in the RUCC 8 counties, the less-than-one-year death rates ranged from 63 % to 93% that year. In 2002, these rates dropped dramatically and consistently across all county groups, suggesting either a change in the government tabulations or dramatic improvements in the economic climate for all of Mississippi. An explanation from the Mississippi Employment Safety Commission was not readily found.

One factor that makes interpretation of these results more difficult is the rather large range in accession and separation rates, especially for non-metro counties. As shown in Table 2, the standard deviations for both of these rates were usually larger in non-metro counties. This seems logical given that although the mean number of businesses is higher in the 7 metro counties of Mississippi, there are 75 individual counties contributing to the average rates of non-metro counties. Within the non-metro category, the total number of businesses range from very small (39-44) to well over 2,000. Considering that the minimum for metro counties is 762-774, there is some overlap that may lead particular non-metro counties to be more similar to metro counties than to other non-metro counties.

In looking at counties with different RUCC codes, it appears that the more rural counties tend to have broader ranges of means. For example, even though there are 30 RUCC 7 counties and only 19 RUCC 9 counties, the latter has a wider range for minimum and maximum accession and separation rates. Additional ANOVA tests were conducted on the non-metropolitan counties alone, but no significant differences were found.

Table 8: Mean Percentage of Businesses Separated in Less Than One Year

Metro/Non-metro Status	2000	2001	2002
-Non-metro	90.60	92.28	60.15
-Metro	93.95	93.72	61.20
t	-2.914	-1.313	-0.394
sig.	.010*	.213	.702
RUCC			
1	93.97	92.35	51.58
2	93.95	93.95	62.80
4	91.75	97.37	70.30
5	91.91	92.09	61.29
6	90.34	90.66	58.93
7	91.02	92.44	62.60
8	83.39	90.57	57.42
9	91.48	93.39	56.89
F	1.429	0.601	0.943
Sig.	.207	.753	.479

CONCLUSIONS

Given the various reasons that potential rural business owners may be less likely to start operations, such as lower levels of economic development, less access to business services and capital, and higher costs, it is not surprising that there tend to be fewer starts in rural areas. However, it should be noted that the lower level of starts may not clearly reflect the success of rural businesses overall. It appears that once businesses are born they are no more likely, or even less likely, to fail. These results are limited by the nature of the data, which measured the number of businesses participating in the state workers compensation insurance program as required by law, but point to an important phenomenon that should be further studied. Considering the lack of readily available data on business failures, this may be a challenging task

Determining the explanation for these varying rates was beyond the scope of this project, but it can be speculated that the reasons people stay in businesses in rural areas may be related to the reasons business owners start them. For example, if people start businesses in order to remain in a given location, as in the study by Tosterud and Habbershon (1992), it seems likely that they would continue their enterprises as long as possible to achieve their overall goal, even if this is very challenging. They may be willing to settle for a lower level of economic success if other objectives are being met (Kuratko, Hornsby, & Naffziger, 1997). On the other hand, if the lower costs, established social networks, and decreased sense of risk experienced by the women in Robinson's (2001) study encouraged them to start businesses, these factors may also play a part in the continued existence and success of these businesses.

Overall, these findings are consistent with those in a study examining the accession and separation rates for businesses in metro and non-metro Ohio counties using a similar type of data (Robinson, 2002). This suggests these are not isolated results, but may be part of an overall phenomenon. Future research should continue to investigate this issue with the aim of determining if there is a reason for lower failure rates in rural areas and how rural residents can be assisted and encouraged to start businesses. Considering the importance of jobs in non-metro areas, the birth of small business employers would be very important to the residents of these areas. In addition, if there is lower risk of business failure in rural areas, lenders may find that these business owners are a better financial risk than those in more developed areas.

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THE ENTREPRENEURIAL CRITIQUE OF THE OPTIMIZATION PARADIGM

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"What we cannot speak about we must pass over in silence."
Ludwig Wittgenstein (1922: proposition 7)

ABSTRACT

This paper criticizes the optimization paradigm in neoclassical microeconomics with respect to its treatment of entrepreneurship. Conventional cost minimization-profit maximization exercises central to modern neoclassical economics virtually ignore entrepreneurial action. Entrepreneurial managers should be understood as seeking to (a) adjust the production process to extract more output from each input or more output from the same level of inputs, (b) switch inputs or combine new inputs with those already used to produce more or cheaper output, (c) devise strategies to sell their output or some part of it for a higher price, (d) attract new buyers and devise new uses for the output, and (e) lower the costs of their inputs. In the theory of the consumer, the optimization exercise ignores entrepreneurial innovations which imply changes in the (a) number of utility function arguments, (b) form of the utility function, (c) consumer income, (d) prices of consumed goods, and (e) quality of consumed goods. More fundamentally, the optimization paradigm ignores entrepreneurial consumers' alertness to these opportunities to costlessly improve the satisfaction of their wants.

In addition to developing an Austrian critique of the prevailing orthodoxy, this paper also offers some modest extensions which partially address the critique, though they fail to overcome it. It is hoped that as the optimization paradigm continues to be central to what is taught in graduate economics programs and much economic research, academic researchers will come to accept a more mature understanding of its limitations.

INTRODUCTION

The optimization paradigm in neoclassical microeconomics is the modeling of economic behavior as a series of constrained and unconstrained optimization problems. Market participants are thought of as knowingly optimizing known objective functions: minimizing cost, maximizing output, maximizing profit, or maximizing utility, subject to known constraints (Robbins 1935). However, analytical functions can never be more than imperfect analogues of the processes of

producing output or obtaining satisfaction through consumption. (It might be suggested that the true objective function is an unknowable transcendental function which theorists crudely attempt to mimic with algebraic functions. Even when the objective function of an optimization exercise is rendered as a transcendental function, it cannot be correctly rendered as the underlying reality is, at best, some other, unknown transcendental function.) In a sense, considered as mathematical models, they do not purport to be anything more. The optimization paradigm is based on fundamental assumptions precluding the possibility of entrepreneurial activity. The uncertainty entrepreneurs overcome and exploit to earn entrepreneurial profits is removed by assumption. Insight entrepreneurial behavior might offer economic theory, and corresponding insight economic theory might shed on entrepreneurial action, are thus ignored and disregarded.

The optimization paradigm is usually presented through graphical analysis at the undergraduate level, while graduate courses are typically more formalized (Samuleson 1947, Debreu 1959, Silberberg 1978, Henderson and Quandt 1980, Chiang 1984, Varian 1984, Takayama 1985). The optimization paradigm assumes away the entrepreneur and treats all the data of the market as perfectly known in advance. This approach fundamentally misrepresents the nature of market competition. The Austrian school has always been skeptical of mathematical formalism: "in the imaginary construction of an evenly rotating system nobody is an entrepreneur and speculator. In any real and living economy every actor is always an entrepreneur and speculator...." (Mises 1949: 252). Entrepreneurial action sometimes improves market coordination and moves the market toward a hypothetical equilibrium, but also sometimes increases the level of discoordination, moving the market further away from idealized equilibrium. Thus entrepreneurship cannot be defined exclusively in terms of its relation to either market equilibria or coordination among economic planners.

Table 1: The Optimization Paradigm

Author	Cost minimization	Profit maximization	Utility maximization
Samuelson (1983[1947])	57-69	76-78	98-100
Silberberg (1978)	179-185	263-275	223-233
Henderson & Quandt (1980[1958])	75-78	78-80	13-16
Varian (1984[1978])	60-64	47-52	115-120
Chiang (1984[1967])	418-421	247-250	400-409
Takayama (1985[1974])	134-135	142	135-137

Entrepreneurial action is necessarily multifaceted and defies simple quantification. The word "entrepreneur" comes from the Old French "*entreprendre*," literally undertaker, that is one who undertakes an enterprise. Blaug (1998: 227) cites several different historical views of entrepreneurship. Entrepreneurial action includes arbitrage (Cantillon 1755), coordination (Say

1803; Kirzner 1973), bearing uncertainty (Knight 1921), innovation (Schumpeter 1934), and most recently (Casson 1982, 1985) increasing the range of available judgments on resource allocation. In terms of the emerging fields of chaos theory, complexity, and fractal analysis (Bygrave 1989; Bouchikhi 1993) entrepreneurs perceive, propose, or attempt to divine, the simple underlying patterns hidden in complex and seemingly disorganized behavior. Thus, there is no simple way to incorporate all modes of entrepreneurship in an optimization problem. Though the two activities and aptitudes often overlap in the same person, entrepreneurship and management of the firm are usually distinct activities (Carland et al 1984). Entrepreneurs change objective and constraint functions, subverting the analytic character of the optimization paradigm.

The basic problem with the optimization paradigm is that it is founded on the unwarranted assumption that all information summarized in market prices, including the preferences of others, is known to agents in advance of their decision. Thus the optimization model of economic decision-making is perfectly deterministic and fundamentally misconstrues the nature of economic action, especially entrepreneurial action. However, prices cannot be known with certainty until *after* an exchange occurs. In fact, entrepreneurs do not optimize with respect to any objectively knowable information set.

A more meaningful way to consider entrepreneurial behavior is that it proceeds experimentally (Eliasson 1990, 1991, 1996, 1997; Eliasson and Taymaz 2000; Johansson 2001) and so generates the information of the market, which can never be known in advance of a voluntary exchange, but only after one takes place (Buchanan 1986), and only as having no necessary implications for potential subsequent exchanges. Once an individual has bought or sold a good or service at a certain price, special to the time, place, and parties to the transaction, unalterable historical information of the market has been created. But this information does not necessarily have any significance for the future, and thus objective knowledge cannot form the basis for market participants' optimizing behavior.

Real behavior is better captured through less precise "rules of thumb" than through the supposedly rigorous optimization paradigm. It seems clear to even casual observers that human behavior is not based on mathematical optimization, either underlying or explicit. Because much human knowledge is tacit, decentralized, and subjective (Polanyi 1966; Hayek 1979; Kirzner 1984b), it becomes particularly difficult to justify assumptions of perfect knowledge and foresight which underlie the optimization paradigm. The optimization paradigm is the most visible manifestation of the misguided attempt to inject a spurious rigor into the social sciences (Hayek 1952). In overreaching for an unattainable certitude, economics ignores the uniqueness and subjectivity of individual knowledge, preferences, and expectations. The unique vision of the individual which makes possible both entrepreneurial innovation and the division of labor has been forgotten by economic theory.

The rest of this paper is organized as follows. Section two discusses the entrepreneur emphasizing the Austrian tradition. Section three presents a discussion of cost minimization in

theory and reality. Section four discusses the distinction between Schumpeter's and Kirzner's definitions of entrepreneurial action. Finally, section five presents concluding remarks.

THE ENTREPRENEUR'S FUNCTION IN SOCIETY

Schumpeter (1934) identifies five types of entrepreneurial innovation (1) introducing new outputs or improving the quality of existing outputs, (2) introducing new methods of production, (3) opening new output markets, especially new export markets, (4) finding new sources of supply of raw materials or intermediate inputs, and (5) creating new kinds of industrial organizations. To Schumpeter, entrepreneurs are not inventors but decision makers who allocate resources to exploit inventions; they are not risk-bearing capitalists but borrow funds from the capitalists to finance their innovations. Casson (1987: 151) notes that Schumpeterian entrepreneurs are defined by their managerial or decision-making role.

Mises (1949: 253) offers what may be the broadest definition of the entrepreneur, "acting man exclusively seen from the aspect of the uncertainty inherent in every action." To Mises uncertainty is everywhere and consequently, everyone is an entrepreneur, and clearly there is at least some entrepreneurial aspect to all human action. But in the optimization paradigm, uncertainty has been assumed away along with the entrepreneur. Entrepreneurial action always responds to an uncertain future, facing uncertainties of future consumer demand, changes in demand and supply in factor markets, and differences in the ability of other entrepreneurs to foresee with a compatible vision, the prerequisite for mutually compatible plans (Mises 1949: 212-214). In addition, entrepreneurial action must recognize the corresponding subjectivity and uniqueness of each other individual's knowledge, expectations, preferences, and plans. The entrepreneur always faces uncertainty because production takes time, so any entrepreneurial action necessarily involves "speculation in the anticipation of future events" (Greaves 1974: 39). Lachmann (1986: 65-70, 116-117) also emphasizes that entrepreneurial action responds to uncertainty about the future.

Much of Kirzner's (1973, 1979, 1984a, 1997) work on entrepreneurship can be reformulated as a detailed critique of the optimization paradigm. Hayek and Kirzner stress the problem of dispersed knowledge given to no one in its entirety (Hayek 1949: 77-78), a problem whose "extent and seriousness cannot be known in advance," "arising out of unawareness of one's ignorance" (Kirzner 1984b: 162). Mises emphasizes the entrepreneurial response to, and exploitation of, market information: "entrepreneur means acting man in regard to the changes occurring in the data of the market" (Mises 1949: 254). The Misesian entrepreneur is alert to arbitrage opportunities which occur when prices in resource markets are not adjusted to prices in the product markets (Kirzner 1973: 85). This is a special case of Hayek's (1949) problem of dispersed knowledge.

In contrast, in some areas Hayek's (1973: 27) understanding of the entrepreneur is particularly sterile and defective. (Hayek is not particularly explicit about how he views firms. See particularly Khalil 1997: 302 for an explanation of why Hayek's distinction between designed and

spontaneous orders supports this interpretation. See also Khalil 1995 and Dupuy 1996.) In Hayek's view, business firms are designed artifacts like radios, toasters, or telescopes. Once the laws of economics are put in place, entrepreneurs exploit them to construct business organizations much the same way engineers employ physical laws to construct machines. Hayek's understanding of firm organization is that it proceeds according to a military model, where the manager issues orders that are followed without question or exception. Hayek recognizes the entrepreneur is endogenous to the firm, but fails to perceive that once a business enterprise is set up, its employees enjoy some degree of autonomy, and the firm in effect takes on a life of its own.

Transactions costs, identified by Coase (1937: 38-46, 1988: 7) as the main reason the division of labor is organized in firms, include information costs. This implies that the transactions costs avoided through organizing production in firms more than offset inefficiencies imposed by bureaucratic organization. The mere existence of firms presumptively demonstrates it successfully minimizes transactions costs, at least over the long run. Entrepreneurial innovation can only be sustained within the context of a firm if resource allocation is flexible, ongoing, and competently informed, that is, entrepreneurially managed. Even if knowledge is embodied in the labor force as human capital, without augmentation through ongoing training, this human capital depreciates rapidly through the diffusion of invention and creative innovation. If a firm's core practices remain static, lowered performance outcomes are inevitable (Schumpeter 1942; Hannan and Freeman 1984; Tushman and Anderson 1986; Levinthal 1994).

Heiner (1983), Kaen and Rosenman (1986), and Cheung and Lai (1993) propose the competence-difficulty (C-D) gap hypothesis as a potential source of behavioral inertia in firms. The C-D gap is a discrepancy between agents' competence to make optimal decisions and the complexity of exogenous risk, which is especially high confronting entrepreneurs. A wide C-D gap leads to dependency on deterministic rules, which can lead to persistent, inertial, and slothful behavior -- exactly opposite to entrepreneurial behavior (Hannan and Freeman 1984). The less bureaucratic organizations of entrepreneurial firms enable them to better exploit new knowledge and information (Link and Reese 1990; Link and Bozeman 1991). In reality, however, innovations are neither random nor exogenous, but result from entrepreneurs' response to their environment, including uncertainty and technological change. Acs et al (1997) suggest small firms contribute more innovations because they better respect and protect the property rights of innovative entrepreneurs, compared with large firms.

Firms with more entrepreneurial cultures better facilitate innovation and attract entrepreneurial employees. Entrepreneurial behavior is central to goal-oriented action by economic agents. The next section will discuss the standard economic treatment of how economic agents attempt to realize their goals. In the standard economic treatment, entrepreneurship is distinguished by its absence.

THE ENTREPRENEURIAL PRODUCER: COST MINIMIZATION

Neoclassical microeconomics frames all economic activity in terms of one of three kinds of optimization exercise. Production by firms is modeled as a process of cost minimization subject to the constraint imposed by the production technology, or through its dual, the equivalent and formally identical process of unconstrained profit maximization. Consumer behavior is modeled as a process of utility maximization, subject to the constraint imposed by consumer income.

The producer's cost minimization problem is discussed as an example of the optimization paradigm. A parallel discussion could be presented on profit or utility maximization. In the cost minimization problem, managers exploit a given and static production technology and a given and static vector of resource and output prices to transform a set of given inputs into a given output. Furthermore, the market structure is also given, when in fact it evolves spontaneously from the uncoordinated action of entrepreneurial innovators (Hayek: 1937, 1945, 1978; Polanyi 1948, 1974; Jacobs 1997, 1999, 2000). Entrepreneurial action ignored by the optimization paradigm includes seeking to (a) adjust the production process to extract more output from each input or more output from the same level of inputs, (b) switch inputs or combine new inputs with those already used to produce more or cheaper output, (c) devise strategies to sell their output or some part of it for a higher price, (d) attract new buyers and devise new uses for the output, and (e) lower the costs of their inputs.

It might be argued that theories of market segmentation and product differentiation allow for item (c), but this is only possible if the market is structured in a way that prevents firms from facing perfectly elastic demand. In economic theory, market structure is predetermined by assumption; in reality it evolves from the behavior of market participants. In reformulating the Walrasian theory of perfect competition, Makowski and Ostroy (2001: 480) recognize "(1) prices are not exogenously given, they arise from bargaining," and "(2) the set of active markets is not exogenously given, it results from innovation." Since the conventional view is that entrepreneurs work primarily through firms, the neoclassical theory of the firm's inability to accommodate entrepreneurial action is a major shortcoming.

The Standard Cost Minimization Problem

One way to formulate the firm's conventional optimization problem is to maximize output subject to a fixed cost constraint. The objective function for optimization is the production function relating quantities of inputs x_1 and x_2 to the quantity of output q, and is given as

$$q = f(x_1, x_2)$$

though, unlike the consumer's utility function, the production function always has a cardinally-measurable physical or value output. Nevertheless, it remains debatable whether the production process can ever be meaningfully captured by an analytic function purporting to be, at best, an approximation; production cannot be captured by a static production function (Johansson 2001: 15). Coordination performed by firm-level decision makers adds value in each stage of production (Mises 1948: 480-485; Rothbard 1962: 323-332; Garrison 1985: 169, 2001: 46). The entrepreneur's actions are experimental, responding to the uncertain business environment (Eliasson 1996: 110) and opportunities offered by the entrepreneur's unique insight. Entrepreneurial managers compete to allocate resources to their highest and most profitable use, but since entrepreneurs cannot know in advance what that best use is, they proceed experimentally. Entrepreneurial incompetence can result in misallocation of resources, but this can only be evaluated after the fact. Often, the most competent entrepreneurs are particularly adept at risk-taking. Furthermore, the very activity of invention, innovation, learning, etc., transforms the economy and makes better outcomes possible for all agents (Johansson 2001:18).

In the stylized formalism of the optimization paradigm, potential inputs x_3 through x_n are ignored. The key Austrian insight that production occurs over time is ignored. ("The transformation of goods of higher order into goods of lower order takes place, as does every other process of change, in time."Menger 1871: 152; see also Hayek 1931, 1933, 1935, 1939, 1941). Non-Austrian economists are hardly ignorant of this fact, but theorize as if they were. The constraint function is the producer's cost constraint which is conventionally given as

$$C^0 = r_1x_1 + r_2x_2 + b$$

where r_1 and r_2 are the resource prices of input resources X_1 and X_2, b is the cost of fixed inputs, and C^0 is the fixed total cost. Again, the cost constraint is assumed given and known in advance. No scope for entrepreneurial discovery is permitted (Kirzner 1984b: 154). Mises notes

> *in the imaginary construction of the evenly rotating economy there is no room left for entrepreneurial activity, because this construction eliminates any change of data that could affect prices. As soon as one abandons this assumption of rigidity of data, one finds that action must needs be affected by every change in the data. As action necessarily is directed toward influencing a future state of affairs, even if sometimes only the immediate future of the next instant, it is affected by every incorrectly anticipated change in the data occurring in the period of time between its beginning and the end of the period for which it aimed to provide (period of provision). Thus the outcome of action is always uncertain. Action is always speculation (1949: 252).*

The contrasting view of neoclassical microeconomics is that action is always optimization, and that the "correct" outcome is always predetermined by the unalterable data of the market. The optimization paradigm fails to recognize the scope for uncertainty, ignorance, and risk. The cost constraint also suffers from omission of the same arguments x_3 through x_n as the production function,

as well as their prices r_3 through r_n. One means for exercising entrepreneurial action is in obtaining lower input prices r_1 through r_n, or a combination of different inputs that lowers production cost (Schumpeter 1934: 133-135). Makowski and Ostroy (2001: 483) note the lack of realism of the standard Walrasian model of perfect competition, in that it treats perfectly competitive firms as price-takers. As they note, prices arise through the competitive process. It can be extremely misleading to model prices as predetermined before competition. Entrepreneurial alertness might also be exercised in seeking to reduce the fixed cost b. Since b is only fixed by construction, alert entrepreneurs should seek ways of reducing it whenever possible. In the optimization paradigm, the producer is assumed to behave in an especially non-entrepreneurial manner. Having chosen C^0 or had it imposed externally, the producer merely seeks to produce as much output q as possible.

The constrained output maximization problem is then constructed as

$$V = f(x_1, x_2) + \mu(C^0 - r_1x_1 - r_2x_2 - b)$$

where $mu \neq 0$ is an undetermined Lagrange multiplier. Finding the first partial derivatives of V with respect to x_1, x_2, and mu, and setting them equal to zero yields the familiar relation

$$f_1 / f_2 = r_1/r_2$$

which states that, at a cost minimum, the ratio of the marginal products of resource inputs X_1 and X_2 must be equal to the ratio between their prices. The second-order condition for a cost minimum is that the cost function be concave upward. However, it is easy to see that the "correct" minimum found through optimization is subject to the constraint that the quantities of other inputs X_3 through X_n have been arbitrarily set at zero. These ratios between the marginal products and the resource prices define the rate of technical substitution (RTS) between X_1 and X_2. The first-order conditions can also be written as

$$\mu = f_1 / r_1 = f_2/r_2$$

indicating the contribution to output of the last dollar spent on each input must equal the Lagrange multiplier mu, which is thus the first derivative of output with respect to cost C with prices r_1 and r_2 constant and resource quantities x_1 and x_2 allowed to vary.

The firm's problem may also be formulated as minimizing a variable cost function subject to the constraint that a prescribed quantity of output must be produced with the given technology described by the production function. The constrained cost minimization problem is expressed as

$$Z = r_1x_1 + r_2x_2 + b + \lambda[q^0 - f(x_1, x_2)]$$

and the partial derivatives of Z are set equal to zero to find the first-order conditions which are solved for the following relations,

$$f_1 / f_2 = r_1 / r_2 \quad \text{or} \quad 1/\lambda = f_1 / r_1 = f_2 / r_2 \quad \text{or} \quad RTS = r_1 / r_2$$

The Lagrange multipliers *lambda* and *mu* are reciprocals. *Lambda* gives the first derivative of cost with respect to output, that is, the marginal cost.

Limitations of Standard Cost Minimization

The optimization paradigm is based on the principle of knowingly optimizing a known objective function subject to known constraints, removing much of the uncertainty with which real-world market participants have to contend. The standard model of perfect competition imposes extreme, and extremely unrealistic, information requirements (Makowski and Ostroy 2001: 480). Furthermore, analytical functions can never be more than imperfect analogues of the processes of producing output or obtaining satisfaction through consumption, and the Austrian school has always criticized excessive mathematical formalism. Limitations of the optimization paradigm should be recognized in that the true objective function may not be known with certainty to market participants, and may not be expressible as an analytic function, even if "known" (Kirzner 1984b: 154), for example, it may be known tacitly (Polanyi 1966).

An alert entrepreneur would always seek to discover ways to adjust the production process to extract more output from each input, or equivalently, extract the same level of output from fewer inputs (Schumpeter 1934: 129-133). Instead, the optimization problem assumes a static, given technology. The optimization problem is necessarily untenable unless the technology has been optimized in advance. In reality, production technology *results* from entrepreneurial discovery. Technology is created, not given, and evolves spontaneously through the participation of uncoordinated individuals (Polanyi 1936, 1941, 1948, 1961; Hayek 1949). More precisely, technology is created by innovators and given to imitators. Imitation of technological improvements is an important mode of entrepreneurial behavior.

Extensions of Standard Cost Minimization

The standard cost minimization problem can be extended in a number of directions to provide a greater degree of realism.

(a) Expanding the Static Input Set

Entrepreneurial alertness might also be applied in discovering new inputs X_3 and X_4 to either substitute or complement X_1 and X_2 in producing a given output. Because the optimization paradigm arbitrarily excludes inputs X_3 through X_n, a more realistic optimum is defined by

$$\mu = f_1 / r_1 = f_2 / r_2 = \ldots = f_n / r_n$$

This more global optimum still assumes a pre-determined and static technology, and can never be fully realized, as the scope for entrepreneurial alertness in discovering new inputs is quite clearly inexhaustible. In neoclassical microeconomics the optimization problem is constrained by arbitrarily setting the quantities of potential inputs X_3 through X_n equal to zero. Even in the context of the optimization paradigm, imposing this indefinite number of constraints, though analytically necessary, is also necessarily unrealistic. Also this exercise, even as modified, ignores the possible choice of different outputs (Schumpeter 1934: 134).

Entrepreneurial managers may switch inputs, use new inputs, or both to produce cheaper output. This is not an optimization process but an experimental one (Eliasson 1991; Johansson 2001). If the production technology A which is assumed uses inputs a and b, and a different production technology B uses c and d, and can produce the same output at a lower unit cost, obviously technology B should be used, but the optimization paradigm assumes this is known in advance. In fact it can only be discovered through experience, trial-and-error, entrepreneurial alertness, discovery, etc. These less tractable transactions of economic behavior cannot be modeled as optimization processes because they cannot meaningfully be represented as having predetermined outcomes -- experimentation is not a deterministic process.

Commitment to the more expensive, less efficient, technology A may preclude discovery of benefits potentially offered by technology B. There are always better versus worse ways to combine inputs, but never a final best, the optimum, which forever precludes discovery of improved technology. This holds even when the input set is fixed.

(b) Technological Improvement

Suppose the Cobb-Douglas production function $q = f(x_1, x_2) = Cx_1^a x_2^b$, represents the production technology understood by managers and engineers prior to an innovation. The prior, restricted production function has the logarithmic form

$$\ln q = \ln C + a \ln x_1 + b \ln x_2.$$

It is nested in the more general transcendental-logarithmic (translog) form

$$\ln q = \ln C + a \ln x_1 + b \ln x_2 + c \ln x_1^2 + d \ln x_1 x_2 + e \ln x_2^2.$$

(Before taking logarithms, the translog is $q = f(x_1, x_2) = C x_1^a x_2^b (x_1^2)^c (x_1 x_2)^d (x_2^2)^e$. The Cobb-Douglas form imposes the constraints that the second-order terms, that is, the exponents c, d, and e, are all zero, and it is convenient, though not necessarily realistic, to assume that innovative entrepreneurs discover more efficient production technology equivalent to removing the zero constraints on the second-order terms. The second-order translog form can be thought of as nested within third or higher-order, but as yet unknown, forms. Thus entrepreneurial discovery can be modeled as an indefinitely ongoing process. Nevertheless, potential improvements realizable by changing to any other new technologies, unknown ex ante, are explicitly excluded.)

Suppose a particular entrepreneurial discovery consists of learning how to make use of the second-order combinations of inputs in the translog. The resulting, more flexible, optimization exercise will realize lower costs and higher profits, because restrictions on the second order terms in the production function have been lifted. (This model can be rendered open ended by realizing that the second-order translog is nested in third and higher order functions. However, the additional precision offered by higher order terms rapidly becomes negligible (Todd 1963). Thus this approach to modeling open-ended technological progress becomes analytically futile as well as computationally cumbersome.)

(c) Relaxing Information Constraints

One fault of the optimization paradigm is that it assumes as given both the objective function and constraints. Provided this information is attainable, it can only be uncovered through extensive search and entrepreneurial alertness, even by academic researchers who purportedly know what they are looking for. Real world entrepreneurs are not likely to be concerned about which algebraic functions best approximate their behavior. Perhaps the most severe criticism against the optimization paradigm is that an entrepreneurial producer can carry out a valid optimization exercise based on unique, subjective, and fallible expectations of prices at which the inputs can be bought and output sold (Kirzner 1990: 167). If these expectations are not realized, the producer may lose money in spite of having "optimized," because market participants often fail to optimize with respect to their true circumstances. True circumstances can only be discovered through experience, but by then it is too late. This first kind of knowledge problem (Kirzner's Knowledge Problem A) causes planned exchanges to be impossible to fulfill. Kirzner notes that these kinds of problems are self-correcting (Kirzner 1990: 169-171), as market participants either adjust their plans to recognize the realities of the market, or withdraw from the market.

It is also possible for the optimization exercise to lead to the erroneous conclusions that inputs cannot be obtained, or output sold, at sufficiently low or high prices, or that production technology, input quality, or consumer demand for the output, are actually better than anticipated by entrepreneurial planners (Kirzner 1990: 168-9). In these cases, (Kirzner's Knowledge Problem B), exchanges which are theoretically feasible, and could be seen ex post to have been feasible, are never planned or undertaken, because market participants are unaware of the feasibility of the potential exchanges. Entrepreneurs always seek to discover such opportunities, but many must go undiscovered. These kinds of problems are not self-correcting, and await entrepreneurial discovery before anyone can be aware of them. The entrepreneur can profit by uncovering, and remedying, instances of Knowledge Problem B.

These objections based on Kirzner's two knowledge problems can be given an alternative formulation, drawing mainly from Hayek (1949) and Kirzner (1984a, 1984b, 1990): the information set assumed by the optimization paradigm *does not exist in reality*. No person possesses it in its totality, but the optimization paradigm assumes perfect information completely shared by all market participants. In reality, it is more accurate to suggest that each market participant possesses some relevant information, much of which is purely subjective. Much of this information is held exclusively by a certain individual, for example, that individual's subjective preferences or his or her plans for future consumption and production. Individuals also differ in their alertness, both in terms of intensity and application (Kirzner 1979: 170). Entrepreneurs overcome the social problem of information dispersal whenever they generate flows of information that stimulate revision of uncoordinated decisions toward greater mutual coordination (Kirzner 1984a: 147) moving the market toward a never-realized equilibrium state. The very concept of market equilibrium is merely an analytical convenience with little practical relevance (Nelson and Winter 1982; Makowski and Ostroy 2001).

Prices summarize relevant information which would otherwise be useless to market participants in satisfying their wants, but the inadequacies in market prices also create the profit-and-loss incentives for entrepreneurs to adjust prices (Kirzner 1984a: 149). A price may summarize economic information regarding the supply and demand conditions in the relevant markets, without signaling whether the price represents an equilibrium or a disequilibrium. Entrepreneurs compete in adjusting prices in a "competitive process which *digs out* what is in fact discovered" (Kirzner 1984a: 150). The competitive process Hayek (1978: 180) describes, where "competition is valuable only because, and so far as, its results are unpredictable and on the whole different from those which anyone has, or could have, deliberately aimed at," is utterly incompatible with the optimization paradigm.

Kirzner's (1984b: 160) view is that disequilibrium prices offer pure profit opportunities for alert entrepreneurs who can arbitrage among different prices prevailing temporarily in different markets. This incentive allows entrepreneurs to effect adjustment of the disequilibrium price vector towards equilibrium. Although, by construction, an equilibrium is never reached, and if it is

reached, is never persistent, the Kirznerian entrepreneur always acts to lessen the extent of the disequilibrium. The equilibrium which is approached constitutes a spontaneous order, a level of coordination which results from human action but not from human design (Hayek 1967). In contrast, a Schumpeterian entrepreneur moves market prices away from equilibrium, by introducing new production technologies, marketing and distribution media, and creating new plans which increase the social dispersion of knowledge. This distinction is explored more fully in section 4. Both kinds of entrepreneurship are ignored by the optimization paradigm.

The cost-minimization problem also fails to recognize the mode of entrepreneurial action which occurs when a firm incurs additional production or selling costs to make the product more desirable to the consumer (Kirzner 1973: 24). Schumpeter (1934: 135) mentions a kind of entrepreneurship consisting of a search for new markets for an existing product. In the optimization paradigm, output quantity is the only decision variable, and selling price is fixed along with production technology, leaving little scope for entrepreneurship. Increased consumer preference can (a) justify increased production or selling costs, (b) enable the firm to increase product price, and (c) be engineered by improving product quality or marketing, but these issues are ignored. This category of entrepreneurial action includes both increased production costs incurred to improve the subjective quality of the product in consumers' eyes, and increased selling costs which also aim at improving subjective quality.

Table 2 summarizes some of the limitations of the optimization paradigm and cites some instances of more realistic, less restrictive, though also less mathematically formalized, treatment of entrepreneurship given by the Austrian school. Extensions of all three kinds of optimization problems, cost minimization, profit maximization, and utility maximization are listed.

Entrepreneurial Alertness, Search, and Discovery

The difficulty faced by the approach of modeling entrepreneurship as a removal of known constraints is that if the less restrictive technology were known to the entrepreneur in advance, they would have made full use of it. This construction can only be set up in an environment where the before and after optima are both fully predetermined, and only the entrepreneur is ignorant of the difference, a particularly sterile way of modeling entrepreneurship, because it constrains the entrepreneur exclusively to realizing artificial productivity gains only as defined in advance by the theorist. Real world entrepreneurs operate under no such constraints. Thus one way of expressing the limitations the optimization paradigm imposes on modeling entrepreneurial behavior is that it reduces entrepreneurship to an Easter egg hunt, where the only prizes which can be uncovered, must always be defined in advance. This is a reductio ad absurdum against the optimization paradigm. The real state of affairs is that entrepreneurs often uncover advances undreamed of by anyone else, or even by themselves prior to the discovery.

Table 2: Some Modes of Entrepreneurial Activity		
	Optimization paradigm	Austrian school
Theory of the Consumer: Utility maximization		
Add arguments in utility function	Ignored but can be accommodated analytically	
Replace existing arguments in utility function	Ignored but can be accommodated analytically	
Attempt to extract additional utility from old arguments in utility function	Utility function assumed given	
Alter preference function	Utility function assumed given	
Negotiate lower prices for consumer goods	Price vector assumed given	Kirzner 1973: 18
Negotiate increase in income	Income assumed given	Rothbard 1962: 183-200
Seek improved quality of consumer goods	Quality ignored for analytical simplicity	
Theory of the Firm: Cost minimization - profit maximization		
Improve input productivity	Production technology and input productivity assumed given	Schumpeter 1934: 129-131, 1962: 104-105, 132; Kirzner 1973: 81
Substitute new, less expensive inputs	Inputs and input prices assumed fixed	Schumpeter 1934: 133-134; Kirzner 1984b: 154
Substitute new, more productive inputs	Production technology and input productivity assumed given	
Introduce new complementary inputs	Inputs assumed fixed	
Increase output price through monopoly	Can be accommodated analytically	Schumpeter 1934: 152
Increase output price through market segmentation	Can be accommodated analytically	
Increase output price through advertising	Output price assumed fixed; advertising costs zero at cost minimum	Kirzner 1973: 24
Attract new buyers	Demand assumed given	Schumpeter 1934: 135-136
Lower input costs	Input prices assumed fixed	
Lower fixed costs	Fixed costs assumed fixed	
Seek monopoly ownership of inputs	Input prices assumed fixed	Kirzner 1973: 21
Switch outputs	Output assumed fixed	Schumpeter 1934: 134-135

Because all search activity is ignored, important features of economizing action are disregarded and assumed away (Kirzner 1984: 156). For example, one forum for entrepreneurial action is to seek monopoly ownership of a resource. This broad category of human action includes both cornering the market for a particular input, and creation of any form of intellectual property. Schumpeter (1934: 152) discusses how temporary monopoly profits always accrue to innovators. Entrepreneurs pursue such strategies all the time. Because the optimization paradigm assumes input and output prices as given, this mode of entrepreneurial action is necessarily ignored. Entrepreneurs should always desire to be monopolist resource owners because that allows them to charge a higher price for their output than non-monopolists (Kirzner 1973: 21). Entrepreneurs also seek to increase output price through becoming monopoly suppliers of the output, or monopolistic-competitive suppliers, for example, through creating intellectual property in their output, or through advertising. Recognizing that market structure is determined by the competitive process of the market is part of Makowski and Ostroy's (2001) reformulation of the Walrasian general equilibrium model of perfect competition.

One obvious area for entrepreneurial innovation is offering different kinds of output for sale to consumers (Schumpeter 1934: 134-135). The role flexible prices and their adjustments play in overcoming Hayek's (1949) problem of dispersed knowledge and coordinating the plans of producers and consumers, is similarly ignored (Kirzner 1984a: 139-140). Kirzner notes that equilibrium prices, if they could persist, would signal market participants' plans to each other, and thus guide future planning. In contrast, disequilibrium prices signal to alert market participants how revised plans may benefit market participants in the future. In Kirzner's view, disequilibrium prices predominate, thus entrepreneurial opportunities are everywhere. Entrepreneurial consumers and producers who take advantage of these disequilibrium prices move the market toward dynamic equilibria which are generally never realized.

MARKET COORDINATION, EQUILIBRIUM, AND THE ENTREPRENEUR: SCHUMPETER'S AND KIRZNER'S VIEWS

Kirzner and Schumpeter give competing views of the role of the entrepreneur. For Schumpeter the entrepreneur seeks to shift the production function and cost function (Triffin 1940: 168, Schumpeter 1942: 104-105, 132). To Lachmann (1976a, 1976b), entrepreneurs change market conditions, often introducing new disequilibria, and guaranteeing that existing equilibria or near equilibria cannot long persist. The Schumpeterian model of entrepreneurship seems to be largely nested within a more general Lachmannian construct. For Kirzner, in contrast, the entrepreneurial function consists of noticing that the cost and revenue functions have shifted: "entrepreneurship for me is not so much the introduction of new products or of new techniques of production as the ability to *see* where new products have become unexpectedly valuable to consumers and where new methods of production have, unknown to others, become feasible" (Kirzner 1973: 81).

Venture capitalists fund the formation of new firms and expansion of existing firms. In so doing they perform the vital function of recognizing and correctly valuing or pricing innovation (Eliasson and Eliasson 1996b; Eliasson 1997; Johansson 2001: 23). Entrepreneurs are alert to disequilibrium prices which signal opportunities for discovery, arbitrage, and innovation (Kirzner 1984a: 146; 1984b: 160-161; 1997), and exploit the information contained in disequilibrium prices to adjust the production structure. The process of industrial innovation includes the allocation and combination of competencies for which no one understands the full extent or implications (Johansson 2001: 25). Resource misallocation is inevitable, and an essential part of entrepreneurial innovation and economic progress in the experimental economy. Competence possesses the unique property of being self-allocating (Pelikan 1993; Eliasson 1996); incompetence, in contrast, may be described as self-misallocating. The self-misallocating property of entrepreneurial incompetence is beneficial because it makes incompetence self-liquidating and serves to insulate competent agents from its impact. The damage done by incompetent agents can be considerable; in a competitive market, entrepreneurial incompetence serves the function natural selection serves in driving biological evolution. In a rapidly changing environment, due to technological change or other factors, competence obsoletes rapidly and becomes incompetence. Where allocation is not sufficiently flexible, misallocation must result and must be persistent.

Kirzner and Schumpeter offer diametrically opposed views of the role of the entrepreneur in relation to market equilibria. Schumpeterian entrepreneurs destroy equilibria (Schumpeter 1934: 64), whereas Kirznerian entrepreneurs effect adjustment toward new equilibria (Kirzner 1973: 72-73). Although a new attempt at reconciling these competing views risks oversimplifying them, it seems hopeful to suggest the two views of the entrepreneurial function arise from differing concepts of the underlying reference equilibrium. In Schumpeter's scheme, the hypothesized equilibrium is associated with the ideal state of an evenly rotating economy. This hypothetical reference equilibrium is unrealized because entrepreneurial action prevents the economy from settling in an evenly rotating state. Schumpeter defines entrepreneurial action with reference to an ex ante equilibrium which was never actually realized; the hypothesized equilibrium is ex ante to the entrepreneurial action, and provides alert entrepreneurs with profit opportunities to exploit.

Kirzner views entrepreneurship as moving the market toward a hypothesized equilibrium. This equilibrium is never realized but can be seen as the goal of the entrepreneurial action ex post; Kirzner's equilibrium is moved toward after the entrepreneurial action. In Kirzner's view the "final" equilibrium is the goal of entrepreneurial action, a goal that is never reached. Schumpeterian entrepreneurs create information asymmetries. The actual dispersion of the asymmetric information created by Schumpeterian entrepreneurs lessens the coordination of economic plans. Kirznerian entrepreneurs exercise alertness to discover already-existing information asymmetries. The Schumpeterian and Kirznerian entrepreneur may well be two different persons, but can equally well be the same. Kirznerian entrepreneurs exploit information asymmetries to earn entrepreneurial profits.

Imagine an initial state of affairs, where information is dispersed, but market participants, ignorant of their own ignorance, are unaware of the asymmetric character of the information they possess. In this context, are market prices equilibrium prices? *Not in the Schumpeterian sense, but certainly in the Kirznerian sense.* A Kirznerian entrepreneur can exploit this opportunity by brokering information about resource and product prices, but only after discovering the information asymmetry. Then the extent of the entrepreneur's success eliminates the asymmetry, ultimately eliminating the entrepreneurial profit opportunity.

In Kirzner's view, prices remain in equilibrium until entrepreneurial alertness discovers information dispersal and asymmetry, and acts to take advantage of the arbitrage opportunity, forcing prices to adjust. Price adjustments effected by Kirznerian entrepreneurs act to reestablish a new equilibrium where market participants' plans are better coordinated and their wants can be better satisfied (Kirzner 1984b: 160). (Kirzner defines equilibrium as a static condition which can only be arrived at by removal of all unexploited profit opportunities. Given this definition, market prices are never equilibrium prices because there are always unexploited profit opportunities. In this paper, the situation considered is the discovery and exploitation of a hypothetical and discrete item of information. Kirzner might not agree with the formulation used in this paper that the market is actually in equilibrium until some agent discovers the previously unknown information. He would agree that as agents exploit new profit opportunities, the market moves toward a new equilibrium which may never actually be reached.) A Schumpeterian entrepreneur exploits the asymmetric information in such a way that they might seek to extend or maintain the dispersal of knowledge. The Schumpeterian entrepreneur disturbs and destroys the old equilibrium; the Kirznerian entrepreneur moves the market toward a new one. Kirznerian entrepreneurs avoid risk and cost (Blaug 1998: 223) because they move the market toward a new equilibrium which could only exist hypothetically after the entrepreneurial action. Schumpeterian entrepreneurs move the market away from the pre-established, though equally hypothetical equilibrium which is destroyed, or at least left behind, by the entrepreneurial action. The Schumpeterian entrepreneur may succeed at moving the market out of equilibrium, or at least away from a hypothesized equilibrium state; the Kirznerian entrepreneur can never really succeed in establishing a new equilibrium.

CONCLUSION

Entrepreneurship is not amenable to limits imposed by an arid mathematical formalism. This is partly due to the facts that (a) the concept of entrepreneurship remains vague and ill-defined, (b) several competing concepts, e.g., Schumpeterian versus Kirznerian entrepreneurship, are floating around, (c) these concepts are often used interchangeably, and most importantly, (d) entrepreneurs are so innovative their behavior often defies categorization.

The neoclassical optimization paradigm largely ignores entrepreneurial activity, thus ignoring much of what is interesting in economic behavior. Although some kinds of entrepreneurial

action can be described within the optimization paradigm, many cannot. For example, production technology, created through one species of entrepreneurial discovery, and implemented through another, is taken as given for analytical convenience. The nature of the entrepreneurial function is treated as beyond the scope of the discipline because it does not result from optimization. Entrepreneurial discovery results from something other than optimization because entrepreneurs act to remove optimization constraints. There is no global optimum to an entrepreneur, only constraints which eventually fall before the onslaught of the human action of inquisitive, profit-seeking entrepreneurs.

Successful entrepreneurs should always move the market from a less optimal to a more optimal state of affairs by removing constraints imposed by ignorance and uncertainty. However, in the optimization paradigm, agents purposely optimize with respect to known objective and constraint functions. Their understanding of these analytic functions may be imperfect or uncertain, resulting in imperfectly implemented human action on which Kirznerian entrepreneurs can always improve. Naturally entrepreneurs profit from providing this service.

It may also happen that Schumpeterian entrepreneurs can enter the scene and change the objective and constraint functions. Apart from the fact that this species of human action automatically creates an opportunity for Kirznerian entrepreneurship, as market participants may not be immediately aware that their objective and constraint functions have changed, initially imperfect human action is driven even further off the mark by changing the analytic functions market participants assumed when they made their production and consumption plans, or were analytically modeled as assuming.

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AN INVESTIGATION OF SOCIOLOGICAL INFLUENCES ON THE RELATIONSHIPS BETWEEN PSYCHOLOGICAL TRAITS AND ENTREPRENEURIAL ORIENTATION OF USED CAR ENTREPRENEURS

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ABSTRACT

Sociological influences are an important factor in the success of an entrepreneurial venture. Sociological factors such as education and a supportive environment may have a moderating impact on the relationship between psychological traits and entrepreneurial orientations. A cross-sectional study was conducted on used-car entrepreneurs in a Southern Metropolitan Statistical Area (SMSA). Results of the study support significant positive relationships between psychological traits and entrepreneurial orientations. Moderated regression results support that levels of education moderate the relationships of three of the four sub-constructs of psychological traits and entrepreneurial orientations. A discussion of the findings is provided as well as directions for future research.

INTRODUCTION

Definitional inconsistency and vagueness in understanding who is an entrepreneur and what features constitute entrepreneurial orientation were succinctly pinpointed by Gartner (1989, p. 47) when he advanced an excerpt from the work of Cole (1969):

> My own personal experience was that for ten years we ran a research center in entrepreneurial history, for ten years we tried to define the entrepreneur. We never succeeded. Each of us had some notion of it – what he thought was, for his purposes, a useful definition. And I don't think you're going to get farther than that (Cole, 1969, p. 17).

Recent reviews of the theoretical and empirical research in the entrepreneurship literature have found changes in the dilemma advanced by Cole some thirty-five years ago (Aldrich & Kenworthy, 1999; Aldrich & Martinez, 2001; Busenitz & Barney, 1997; Carland, Hoy, Boulton &

Carland, 1984; Cole, 1969; Gartner, 1988, 2001; Knight, 1921; Lee & Peterson, 2000; Lumpkin & Dess, 1996; Lyon, Lumpkin, & Dess, 2000; Schumpeter, 1934; Shane & Venkataraman, 2000).

Brockhaus and Horowitz (1985), in their review of the psychology of the entrepreneur, cautioned that no generic definition of the entrepreneur exist, or if there is, we do not have the psychological instruments to discover it at this time. Lumpkin and Dess (1996) asserted, "…efforts have served to point out the various dimensions of the entrepreneurial process, they have not led to any widely held consensus regarding how to characterize entrepreneurship. This lack of consensus has impeded progress for researchers toward building and testing a broader theory of entrepreneurship, and has made it especially difficult for them to investigate the relationship of entrepreneurship to performance." Hornaday (1992, p. 12) continued, "there is no accepted definition-working or otherwise- of the terms – 'entrepreneur' and 'entrepreneurship'…the lack of consensus…ensnares nearly every empirical or theoretical research effort."

Many researchers have defined entrepreneurship as the creation of a new venture or creation of a new organization (Gartner, 1988). Lumpkin and Dess (1996) are of the opinion that entrepreneurship encompasses every step taken by an entrepreneur in entry to a new business and its concomitant problems of new start-ups. Entrepreneurial orientation encompasses the processes, methods, practices, and decision-making styles managers use to act entrepreneurially.

The entrepreneurial orientation concept as applied to a firm has its origin in the strategic management literature (Bourgeois, 1980; Lumpkin & Dess, 1996; Miles & Snow, 1978). Previous research provided strong empirical and theoretical support for three dimensions (innovativeness, proactiveness, and risk taking) which comprise entrepreneurial orientation (Covin & Slevin, 1989, 1991; Miller, 1983; Miller & Friesen, 1982). Lumpkin and Dess (1996) expanded the dimensions to five with the inclusion of autonomy and competitive aggressiveness. The five dimensions or some of these may determine the success of new business formation (entrepreneurship) or the successful managing of a new business (entrepreneurial orientation). Lumpkin and Dess' contention is augmented by Gartner's (1985) perspective that a new start-up business venture is a multidimensional phenomenon suggesting that each dimension should be considered collectively, not alone, to determine the success of entrepreneurship and/or entrepreneurial orientation.

The "psychological traits" approach to entrepreneurship has been criticized by a number of researchers as unsatisfactory and questionable (Aldrich & Zimmer, 1986; Gartner, 1988; Low & Macmillan, 1988) in explaining entrepreneurial behavior and performance. "In the trait approach the entrepreneur is assumed to be a particular personality type, a fixed state of existence, a describable species that one might find in a picture in a field guide" (Gartner, 1988, p. 48). Gartner proposed that entrepreneurship should be analyzed from the perspective of what an entrepreneur does and not what he is. This paper will take an integrative stance that personality traits viewed alone as suggested by Gartner (1988) is not adequate to explain the phenomenon of entrepreneurship.

As suggested by Gartner (1988) and Vesper (1980), the creation of an organization is a complex process and a contextual event, the outcome of many influences. Vesper (1980) pointed out that the more education and experience an entrepreneur has had in business (especially small business), the more likely it is that the current venture will be a success. Experience enables the entrepreneur to identify potential problems and deal with them before they destroy the venture. To some extent, managerial ability will be a function of the entrepreneur's education and experience, but it is also an inborn skill, which some entrepreneurs are not able to develop. Vesper (1980) further asserts that management practices affect entrepreneurship. "Thus, although there tends to be a generally positive correlation between good management practices and successfulness, the place where their role is strongest tends to be more downstream of startup than prior to or during startup" (p. 51).

This study fosters the aforementioned assertions that demographics and education, and supportive environmental sociological variables moderate the need for achievement, internal locus of control, propensity for risk taking and tolerance for ambiguity psychological traits to enhance entrepreneurial orientation.

PURPOSE OF STUDY

This study empirically examined how sociological factors moderate the relationships between psychological traits and entrepreneurial orientation among entrepreneurs in the used car industry in a "Deep South" Standard Metropolitan Statistical Area (SMSA).

Study Hypotheses

Hypotheses are formulated to empirically investigate (1) the relationship between psychological traits and entrepreneurial orientation and (2) the moderating influences of sociological influences on the relationships between psychological traits and entrepreneurial orientation:

H_{1a}	Need for achievement is positively related to entrepreneurial orientation.
H_{1b}	Internal locus of control is positively related to entrepreneurial orientation.
H_{1c}	Tolerance for ambiguity is positively related to entrepreneurial orientation.
H_{1d}	Risk taking propensity is positively related to entrepreneurial orientation.
H_{2a}	Levels of education moderate the relationship between need for achievement and entrepreneurial orientation.
H_{2b}	Levels of education moderate the relationship between internal locus of control and entrepreneurial orientation.
H_{2c}	Levels of education moderate the relationship between tolerance for ambiguity and entrepreneurial orientation.

H_{2d}	Levels of education moderate relationship between propensity for risk-taking and entrepreneurial orientation.
H_{3a}	Supportive environment moderates the relationship between need for achievement and entrepreneurial orientation.
H_{3b}	Supportive environment moderates the relationship between internal locus of control and entrepreneurial orientation.
H_{3c}	Supportive environment moderates the relationship between tolerance for ambiguity and entrepreneurial orientation.
H_{3d}	Supportive environment moderates the relationship between risk-taking propensity and entrepreneurial orientation.

The remainder of this paper is divided into five parts. In the next section we briefly review the research related to four personality characteristics—need for achievement, locus of control, tolerance for ambiguity, and risk-taking propensity. Then, we identify the research instruments used to collect data on the personality characteristics and entrepreneurial orientation and supportive environment constructs. The sample selection process will be addressed; followed by the analysis of results employing hierarchical and moderated regression analysis to test study hypotheses. Finally, we discuss the implications of our study and future research needs.

LITERATURE REVIEW

Need for Achievement

In McClelland (1961), *The Achieving Society*, the need for achievement trait has been empirically linked to entrepreneurial behavior. The need for achievement is defined as a tendency to choose and persist at activities that hold a moderate chance of success or a maximum opportunity of personal achievement satisfaction without the undue risk of failure. The author drew diverse samples from business executives representing various functional specialties, general management, sales and marketing, finance, engineering, and personnel. Senior marketing managers were found to have the highest—need for achievement. He posits that needs are learned and therefore, culturally, not biologically determined. He also further noted that some cultures produced more entrepreneurs because of the socialization process that creates a high need for achievement.

In a longitudinal analysis of the need for achievement scores of college freshmen, McClelland (1965) concluded that a high need for achievement is a predictor of entrepreneurship and is based on influences of childhood and adult training and experiences. McClelland's work was initially influenced by Murray's (1938) studies in the development of his Need for Achievement Theory (Fineman, 1977). McClelland shared with Murray the belief that analysis of fantasy is the best way to assess motives, which are primarily based on unconscious state. Through the usage of

the Thematic Apperception Test (TAT), which requires the writing of imaginative stories by subjects in response to a set of pictures, the stories were content analyzed for achievement imagery to obtain an n Ach score by the author. Through the correlation studies in the laboratory, McClelland determined that those high in n Ach, as measured by the TAT, tended to exhibit an original five behavioral traits to a reduced three: (1) Takes personal responsibility for finding solutions to problems; (2) Sets moderate achievement goals and takes calculated risks; and (3) Wants concrete feedback regarding performance. McClelland conducted a number of studies demonstrating that high n Ach and the subsequent manifestation of the above behaviors correlated strongly with entrepreneurial success (McClelland, 1961, 1965a).

Studies have lent support to the aforementioned findings (Begley & Boyd, 1987; Brockhaus, 1982; Johnson, 1990; McClelland, 1965b; Miner, Smith & Bracker, 1989; Shaver & Scott, 1991). After reviewing the entrepreneurship literature, Shaver and Scott (1991) corroborated the findings of Johnson (1990) by stipulating overall, achievement motivation is a valid predictor of entrepreneurial behavior.

However, the weakness of McClelland's study is in the categorization of the sample analyzed (Gartner, 1989). Initially, McClelland tested college students for level of need for achievement during their freshman year. About fourteen years later, the sample was tested again when they settled in their chosen careers. McClelland observed that those students who had high n Ach levels were significantly more likely to become employed as business entrepreneurs. The problem or criticism of the study lies with the sample selection. The sample consisted of salesmen, real estate brokers, management consultants, fundraisers, corporate officers, independent business owners and executive assistants. Since the sample did not represent actual entrepreneurs, which is the object of study, it implies that McClelland's findings predicted, at best, individuals with potential entrepreneurial behaviors and not entrepreneurship per se. Low and Macmillan (1988) is of the opinion that McClelland's conclusions can be applied to many individuals, both entrepreneurs and non-entrepreneurs. Some studies have failed to provide support or are inconclusive on the linkage between high need for achievement and exploiting entrepreneurial opportunities (Sexton & Bowman, 1985).

Locus of Control

Locus of control refers to the degree to which an individual perceives events in his or her life to be under his or her control [internal]; or as unrelated to his or her actions and therefore, beyond his or her control [external] (Sexton & Bowman, 1985). People with internal locus of control believe that they can control what happens in their lives. On the other hand, people with external locus of control tend to believe that most of the events in their lives result from luck, being in the right place at the right time, and the behaviors of powerful people. Research indicates that individuals with

internal locus of control often have a more expressed need for achievement (Brockhaus, 1982; Gurin et al., 1969; Lao, 1970).

In an empirical study conducted by Khan and Manopichetwattana (1989), they addressed the proposition whether the characteristics of innovative and non-innovative small firms have significant differences. Their sample was comprised of 50 manufacturing small businesses in the Texas area using cluster and correlational analyses to analyze the data. They found a positive relationship between internal locus of control and innovation. Boone, DeBrabander, and Van Witteloostuijn's (1996) empirical research investigation focused on the furniture industry with a sample comprised of small firms and family-owned small businesses (homogeneous population). They were interested in getting at whether chief executive officers or top management team internality had a positive effect on organizational outcomes. Replicating previously tested hypotheses, they found internal locus of control to be associated with company performance. Their findings corroborated prior study findings of (Begley & Boyd, 1986, 1987; Bonnett & Furnham, 1991, Nwachukwu, 1995) that internal locus of control is an important entrepreneurial personality trait.

A number of studies have failed to support the relationship between internal locus of control and an entrepreneur. Neider (1987) conducted a study in Florida with a sample of fifty-two female entrepreneurs to discern the degree of locus of control and entrepreneurs. Using the Rotter's scale measurement, the researcher found no significant relationship between internal locus of control and entrepreneurs. The fifty-two entrepreneurs scored lower than the female population in general. Somewhat similar study findings were revealed in the work of Begley and Boyd (1987). Comparing the internal locus of control of entrepreneurs and managers, their findings showed no significant differences in both groups though both groups were shown to have more internal locus of control than the general population.

The literature tends to indicate that internal locus of control scores do not correspond consistently with entrepreneurship performance differences (Sexton & Bowman, 1985). The summary conclusion is that while internal locus of control is an important trait of an entrepreneur when compared to the general population, it is not only common in entrepreneurs but also, it is a trait that is found in professional managers.

Tolerance for Ambiguity

Frenkel-Bruswik (1948, p. 226) reported a study comprised of 100 adults and 200 California children from ages 9 to 14 years old in which the researcher looked at their attitudes to ethnic prejudice and argued that tolerance for ambiguity is to be conceived as "a general personality variable relevant to basic social orientation."

Entrepreneurial managers are generally believed to tolerate more ambiguity than conservative managers because entrepreneurial managers confront less-structured, more uncertain

set of possibilities (Bearse, 1982), and actually bear the ultimate responsibility for the decision (Gasse, 1982; Kilby, 1971). Budner (1962, p. 29) defined tolerance for ambiguity as the "tendency to perceive ambiguous situations as desirable," whereas intolerance for ambiguity was defined as "the tendency to perceive … ambiguous situations as sources of threat." An ambiguous situation is one in which the individual is provided with information that is too complex, inadequate, or apparently contradictory (Norton, 1975, p.607). The person with low tolerance of ambiguity experiences stress, reacts prematurely, and avoids ambiguous stimuli. On the other hand, a person with high tolerance of ambiguity perceives ambiguous situations/stimuli as desirable, challenging, and interesting and neither denies nor distorts his or her complexity of incongruity.

Theoretically, people who best tolerate ambiguity are those who obtain superior results if their strategic objective is to pursue growth. Entrepreneurs who seek to increase market shares in their respective industries face more uncertain phenomenon than those who seek to increase profitability. The strategy utilized to implement increase in market share is based on conditions of uncertainty, which requires a greater tolerance of ambiguity. Thompson (1967) stipulated that in a determinist world, the higher the number of external dependencies faced by firms, the greater the degree of uncertainty.

Dollinger (1983), with a sample size of 79 entrepreneurs using Budner's (1962) scale, found that entrepreneurs scored high in the tolerance for ambiguity test. The results showed that tolerance for ambiguity trait is positively related to entrepreneurial activity. Gupta and Govindarajan's (1984) data from 58 strategic business units revealed that greater marketing/sales experience, greater willingness to take risk, and greater tolerance for ambiguity, on the part of strategic business unit general manager, contribute to effectiveness in the case of "build" strategic business units; but hamper it in the case of "harvest" strategic business units. Carland et al.'s (1989) research revealed that people who best tolerate ambiguity are also the most innovative. Tolerance for ambiguity is reported to relate to personal creativity (Tegano, 1990) and the ability to produce more ideas during brainstorming (Comadena, 1984).

The above cited findings tend to indicate that creativity and innovativeness requires a certain degree of tolerance for ambiguity. The ability to tolerate ambiguous situations may also be positively related to the risk-taking behavior of the entrepreneur. Risk-taking requires a certain degree of tolerance for ambiguity. In addition, research indicates that individuals with intolerance for ambiguity tend to perceive higher degrees of risk under the same circumstances (Tsui, 1993).

Risk-Taking Propensity

Brockhaus (1980, p. 12) defines risk-taking propensity as "the perceived probability of receiving rewards associated with the success of a situation that is required by the individual before he or she will subject himself/herself to the consequences associated with failure, the alternative situation providing less reward as well as less severe consequences than the proposed situation."

Conducting a study sample of 93 small business owners in St Louis County, Missouri and applying a Kogan–Wallach choice dilemmas questionnaire to compare entrepreneur and small business managers' propensity for risk-taking, the researcher found no significant difference in risk-taking propensity between entrepreneurs and small business managers.

Begley and Boyd (1987) conducted a study in New England with a sample of 239 members of a small business association to determine the difference in psychological characteristics of entrepreneurs and small business managers. Using a survey questionnaire to elicit respondent's perceptions, the researchers found significant differences between entrepreneur's risk-taking propensity as compared to small business managers. Sexton and Bowman (1982) found no significant difference in risk-taking behaviors between entrepreneurs and managers. Sexton and Bowman (1985) concluded that risk-taking propensity may distinguish entrepreneurs and managers.

In a study conducted by MacCrimmon and Wehrung (1990), a sample of five hundred chief executives of businesses was drawn to determine the validity of common stereotypes of risk-taking propensity using factor and linear discriminant analyses. The researchers found that the most successful executives were the biggest risk takers; the most mature executives were the most risk averse. Busenitz (1999) examined bias and heuristics of entrepreneurs and found that entrepreneurs do not see themselves as taking more risky ventures. They do not score significantly better than professional managers in risk-taking propensity.

Study findings on the risk-taking propensity of entrepreneurs have basically been uncorroborative, inconclusive and inconsistent. A likely explanation for the divergence in findings may lie in the methodologies applied in previous studies. Numerous study findings that suggest no risk-taking propensity difference between entrepreneurs and managers or non-entrepreneurs used Kogan and Wallach's (1964) Choice Dilemmas Questionnaire (CDQ), which was designed to measure risk attitudes (Stoner, 1961).

Overall, research findings suggest that, on the aggregate, entrepreneurs are moderate risk-takers but significantly differ from managers or the general public (Brockhaus, 1982; Low & Macmillan, 1988).

METHOD

Research Instrument

Need for achievement was measured using a three-item, 7-point Likert type scale that was originally developed by Edwards (1959) to measure achievement motivation. The mean score of achievement motivation among respondents was 5.88, which indicated that, on the aggregate, used-car entrepreneurs possess a high level of achievement motivations.

Internal locus of control was measured using a four-item, 7-point Likert type scale that was originally developed by Rotter (1966) to measure generalized expectancies. The mean score of

internality among respondents was 5.70, which indicated that, on the aggregate, used car entrepreneurs possess a high level of internal locus of control.

Tolerance for ambiguity was measured using a three –item, 7-point Likert type scale that was originally developed by Budner (1962) to measure tolerance for ambiguity. The mean score of tolerance for ambiguity among respondents was 5.24, which indicated that, on the aggregate, used car entrepreneurs possess above average level of tolerance for ambiguity.

Risk-taking propensity was measured by a two-item scale that was developed by Kogan and Wallach (1964). The mean score for risk taking propensity among respondents was 3.11, which indicated that, on the aggregate, used car entrepreneurs have an average level of risk-taking propensity.

Entrepreneurial orientation dimensions (H_{1a-d}, H_{2a-d}, H_{3a-d}) were measured using an eleven–item, 7-point Likert-type scale that was designed to measure respondents' entrepreneurial orientations. The mean score value among respondents was 4.15, which indicated that, on the aggregate, used car organizations are entrepreneurially oriented. This result is consistent with previous research studies (Chadwick 1998; Covin & Slevin, 1989; Knight 1997; Naman & Slevin, 1993). Table 1 summarizes the descriptive statistics of the study variables.

Table 1: Descriptive Statistics of Variables

Statistics	Supportive Environment	Need Achievement	Internal Locus of Control	Tolerance for Ambiguity	Risk Taking Propensity	Entrepreneurial Orientation
Mean	5.61	5.88	5.70	5.24	3.11	4.15
Median	5.67	6.00	6.00	5.33	3.00	4.46
Mode	6.30	6.30	6.00	5.33	3.00	4.46
Std. Dev.	1.38	1.27	1.09	1.18	1.21	1.41
Kurtosis	0-.15	5.50	2.95	0.44	1.21	-0.07
Skewness	-2.48	-1.05	-1.42	-0.77	-1.10	-0.017
Minimum	2.00	1.33	1.00	2.00	0.00	1.38
Maximum	7.00	7.00	7.00	7.00	5.00	7.00
Range	5.00	5.67	5.50	5.00	5.00	5.62

Supportive environment factors H_{2a-d} and H_{3a-d} were measured using a three-item, 7-point Likert type scale that was designed to assess the adequacy of institutional and legal frameworks, government policies, availability of universities, training and research services to the used car business community. The mean score of supportive environment among respondents was 5.61 which indicated that, on the aggregate, used car entrepreneurs perceived their business environment as supportive in terms of having adequate legal and institution frameworks, favorable government

policies, availability of universities, training, research and counseling services, for efficient functioning of private enterprises.

Sample

The sampling frame for this study was a mailing list of the registered used auto dealers and owners of used car lots situated in a "deep" south Standard Metropolitan Statistical area (SMSA). Three hundred fifteen (315) self-reported questionnaires with a self-addressed, stamped return envelope were mailed to the randomly selected auto dealers from the original four hundred and forty (440) registered population list. A total of ninety five (95) questionnaires were returned, completed and usable, representing a 30.16 percent response rate of the 315 mailed questionnaires.

ANALYSIS

Testing of Hypotheses

Psychological Characteristics and Entrepreneurial Orientation

Hypotheses H_{1a-d} were tested employing hierarchical regression analysis. Hierarchical regression is the statistical technique of choice when a single metric dependent variable is presumed related to one or more metric independent variables (Hair, Anderson, Tatham, & Black, 1995). The objective of this statistical procedure is to explain changes in the dependent variable with respect to changes in the independent variables.

Statistical analyses were performed on the full model (need for achievement, internal locus of control, tolerance for ambiguity and risk- taking propensity) employing the hierarchical procedure of SPSS (Morgan & Griego, 1998). Hypothesis H_{1a} states that need for achievement is positively related to entrepreneurial orientation. The results of the regression analysis are shown in Table 2. The first independent variable entered in the hierarchical regression was need for achievement. A significant relationship was found ($b = .369$, $p < .001$), and it explained 13 percent of the variance in entrepreneurial orientations.

Hypothesis H_{1b} states that internal locus of control is positively related to entrepreneurial orientation. Hypothesis H_{1c} states that tolerance for ambiguity is positively related to entrepreneurial orientation. Hypothesis H_{1d} states that risk-taking propensity is positively related to entrepreneurial orientation. Results showed significant relationships between tolerance for ambiguity and entrepreneurial orientation ($b = .305$, $p < .01$) with additional variance change of 11 percent explained in entrepreneurial orientations. The positive relationship between risk-taking propensity and entrepreneurial orientations was not significant ($b = .174$, $p. < .10$). The positive relationships

between internal locus of control and entrepreneurial orientations were not significant (b = 0.081, p. = .394) [See Table 2].

Table 2: Regression Results: Psychological Traits and Entrepreneurial Orientation

Independent Variables	Beta	SE	F	R^2
Need for Achievement	369***	.093	13.74	.13
Internal Locus of Control	.081	.106		
Tolerance for Ambiguity	.305**	.091		
Risk taking Propensity	.174	.032		
R^2		.28		

Adjusted R^2 = .25 Change in R^2 .15
Only standardized regression coefficients are shown
N = 94
*** P < 0.001
** P < 0.01

Table 3: Correlation Coefficients

Orientation	Entrepeneurial Orientation	Need for Achievement	Internal Locus of Control	Tolerance of Ambiguity	Risk Taking Propensity	Levels of Education	Supportive Environment
Need for Achievement	.36**						
Internal Locus of Control	.22*	29**					
Tolerance for Ambiguity	32**	-.05	.10				
Risk-Taking Propensity	19*	-.09	-.01				
Levels of Education	.26**	.25**	.27**	.05	-.00		.41**
Supportive Environment	.31**	.18*	.24*	.28**	.06		

** = Significant at 0.01 level
* = Significant at 0.05 level

RESULTS

Need for Achievement and Entrepreneurial Orientations

H_{1a}: The need or achievement is positively related to entrepreneurial orientation.

Hypothesis H_{1a} states that need for achievement is positively related to entrepreneurial orientation. Results of the Pearson's correlations suggest significant orientations (See Table 3). Hierarchical regression results suggest significant positive relationships between need for achievement and entrepreneurial orientations. The results indicated that need for achievement had a standardized coefficient beta of = .36, p. < .001. Thus, hypothesis H_{1a} is supported.

These findings converge with other prior empirical research studies that have linked need for achievement to entrepreneurial process (Begley & Boyd, 1986; Johnson, 1990; McClelland, 1961, 1965_a; Shaver & Scott, 1991). For example, Miner et al. (1989) advanced the notion that achievement motivation was positively related to firm growth, and personal innovativeness in a sample made up of actual entrepreneurs.

Internal Locus of Control and Entrepreneurial Orientations

$H_{1b:}$ Internal Locus of control is positively related to entrepreneurial orientation.

Hypothesis H_{1b} states that internal locus of control is positively related to entrepreneurial orientations. Results of the Pearson's correlations suggest significant weak positive relationships between internal locus of control and entrepreneurial orientations. However, results of the hierarchical regression did not suggest significant positive relationships between internal locus of control and entrepreneurial orientations. Thus, Hypothesis H_{1b} is not supported.

Tolerance for Ambiguity and Entrepreneurial Orientations

H_{1c}: Tolerance for ambiguity is positively related to entrepreneurial orientation.

Hypothesis H_{1c} states that tolerance for ambiguity is positively related to entrepreneurial orientation. Results of the Pearson's correlations suggest significant moderate positive relationships between tolerance for ambiguity and entrepreneurial orientations. Results of the hierarchical regression also suggest significant positive relationships between tolerance for ambiguity and entrepreneurial orientations. Thus, hypothesis H_{1c} is supported. Tolerance for ambiguity with a standardized beta coefficient of .31 at a significance level of p. < .01 suggests a significant explanatory power for the twenty five percent variance (R^2adj.=.25) explained by the psychological

traits equation of entrepreneurial orientations. These findings lend support to prior research studies that linked tolerance for ambiguity to entrepreneurial behavior (Tegano, 1990; Tsui, 1993).

Risk Taking Propensity and Entrepreneurial Orientations

H_{1d}: Risk-taking propensity is positively related to entrepreneurial orientation.

Hypothesis H_{1d} states that risk-taking propensity is positively related to entrepreneurial orientations. Results of the Pearson's correlations suggest a significant weak positive relationship between risk taking propensity and entrepreneurial orientations. Results of the hierarchical regression also suggest positive relationships between risk taking propensity and entrepreneurial orientations but not significant at a specified level. Thus, hypothesis H_{1d} does not have significant support.

Schoonhoven (1981) and Darrow and Kahl (1982) recommended moderated regression analysis as an appropriate statistical technique for testing hypothesized contingency relationships. Covin and Slevin (1989) confirmed that the technique is appropriate because it allows for interaction terms that are implied in all contingency relationships to be directly examined. Also, Arnold (1982) asserted that moderated regression analysis provides the most straightforward method for testing contingency hypotheses where an interaction is implied. Finally, moderated regression analysis is an appropriate method for identifying interaction effects in a format that the significance of the interaction terms are tested only after other independent variables are entered into the equation. Thus, interaction effects are interpreted as being significant only if they explain a greater portion of the variance in the dependent variable than that which is explained by individual independent variables (Covin & Slevin, 1989).

The statistical significance of interaction effects were tested by first regressing the dependent variable on the independent variables, and the hypothesized moderator variables and then adding the interaction terms that represent the cross product of the independent variable and each of the proposed moderator variables (Sharma, Durand, & Gur-Arie, 1981). The moderated regression equations implemented to test hypotheses 2a-d and 3a-d were replicated from the work of Sharma et al. (1981).

Education and Entrepreneurial Orientation

$H_{2a,}$ $H_{2b,}$ $H_{2c,}$ H_{2d}: The interaction of the levels of education is positively related to the psychological traits of need for achievement, internal locus of control, tolerance for ambiguity and risk taking propensity.

The results of the moderated regression analyses are presented in Table 4. The interactions terms of the levels of education and psychological traits were computed using SPSS by multiplying

the levels of education variable and each of the four sub constructs of psychological traits (need for achievement, internal locus of control, tolerance for ambiguity and risk taking propensity) to ascertain whether the variance of the two products provided incremental explanatory power of entrepreneurial orientations. The interactions of need for achievement and levels of education variables provided negative variance change of -0.007 at a significance level of $p < 0.01$.

Table 4: Regression Results: Education Moderating the Relationships Between Psychological Traits and Entrepreneurial Orientations

Entrepreneurial Orientation (Dependent Variable)	Beta	R^2	Change in R^2
Independent Variables			
Need for Achievement (NA)	.342***	.130	
Internal Locus of Control (C)	.051	.014	
Tolerance for Ambiguity (T)	.300***	.108	
Risk-Taking Propensity (R)	.173	.029	
Levels of Education (E)	.143	.018	
R^2		**0.299**	
Need for Achievement X Levels of Education	.351**	.123	-.007
Internal Locus of Control X Levels of Education	.297**	.088	.074
Tolerance for Ambiguity X Levels of Education	.367***	.134	.026
Risk Taking Propensity X Levels of Education	.268**	.072	.043
		0.417	**0.136**

R^2 =0.417
Change in R^2 =0.136
Only standardized coefficients are shown
*** $p < 0.001$
** $p < 0.01$

The interactions of internal locus of control and levels of education provided incremental R^2 change of 0.074 at a significance level of $p<0.01$. The interactions of tolerance for ambiguity and levels of education provided incremental R^2 change of 0.026 at a significance level of $p<0.001$. The interactions of risk taking propensity and levels of education provided incremental R^2 change of 0.043 at a significance level of $p<0.01$.

Overall, the moderated multiple regression results suggest that, the interactions of levels of education and three of the four sub constructs of psychological traits (internal locus of control,

tolerance for ambiguity, risk taking propensity) provided incremental R^2 change or higher explanatory powers of entrepreneurial orientations as hypothesized in $H_{2b,}$ $H_{2c,}$ and H_{2d}.

Supportive environment and entrepreneurial orientations

$H_{3a,}$ $H_{3b,}$ $H_{3c,}$ H_{3d}: The interaction of the terms of supportive enviromnents will show incremental variance change as related to the psychological traits of need for achievement, internal locus of control, tolerance for ambiguity and risk taking propensity.

Table 5: Regression Results: Supportive Environments Moderating the Relationships Between Psychological Traits and Entrepreneurial Orientations

Entrepreneurial Orientation (Dependent Variable)	Beta	R^2	Changes in R^2
Independent Variables			
Need for Achievement	.348***	.130	
Internal Locus of Control	.055	.014	
Tolerance for Ambiguity	.265**	.108	
Risk-Taking Propensity	.169	.029	
Supportive Environment	.151	.020	
R^2		0.301	
Need for Achievement X Supportive Environment	.396***	.157	.027
Internal Locus of Control X Supportive Environment	.332**	.110	.096
Tolerance for Ambiguity X Supportive Environment	.390***	.152	.044
Risk Taking Propensity X Supportive Environment	.264*	.070	.041
		.489	0.208

R^2 =0.489
Change in R^2 =0.208
Only standardized coefficients are shown
*** $p < 0.001$
** $p < 0.01$
* $p < 0.05$

The results of the moderated regression analyses are presented in Table 5. The interactions terms of the supportive environments and psychological traits were also computed using SPSS by multiplying the supportive environments variable and each of the four sub constructs of

psychological traits (need for achievement, internal locus of control, tolerance for ambiguity and risk taking propensity) to ascertain whether the variance of the two products provided incremental explanatory power of entrepreneurial orientations. The interactions of need for achievement and supportive environments variables provided incremental variance change of 0.027 at a significance level of $p < 0.001$. The interactions of internal locus of control and supportive environments variables provided incremental variance change of 0.096 at a significance level of $p < 0.01$. The interactions of tolerance for ambiguity and supportive environments variables provided incremental variance change of 0.044 at a significance level of $p < 0.001$. The interactions of risk taking propensity and supportive environments variables provided incremental variance change of 0.041 at a significance level of $p < 0.05$.

Overall, the moderated multiple regression results suggest that, the interactions of supportive environments and the four sub constructs of psychological traits (need for achievement, internal locus of control, tolerance for ambiguity, risk taking propensity) variables provided incremental variance change or higher explanatory powers of entrepreneurial orientations as hypothesized in $H_{3a,}$ $H_{3b,}$ $H_{3c,}$ and $H_{3d.}$

DISCUSSION

The theoretical underpinnings for this research study specified that psychological traits relate positively to entrepreneurial orientations and sociological influences such as, levels of education, and supportive environments, moderate the relationships between psychological traits and entrepreneurial orientations.

Results of the Pearson's correlations largely support significant positive relationships between psychological traits and entrepreneurial orientations. However, the results of the hierarchical regression only provide support for significant relationships for two of the four sub constructs of psychological traits (need for achievement, tolerance for ambiguity) and entrepreneurial orientations. Thus, hypothesis (H_{1a}), which states that need for achievement is positively related to entrepreneurial orientations, and hypothesis (H_{1c}), which states that tolerance for ambiguity is positively related to entrepreneurial orientations are supported. Hypotheses (H_{1b}) and (H_{1d}) are not supported.

Moderated regression results support that, levels of education moderate the relationships of three of the four sub-constructs of psychological traits (internal locus of control, tolerance for ambiguity, and risk taking propensity) and entrepreneurial orientations as hypothesized in $H_{2b,}$ $H_{2c,}$ and $H_{2d.}$

Moderated regression results also suggest that supportive environments moderate the relationships between psychological traits and entrepreneurial orientations as hypothesized in $H_{3a,}$ $H_{3b,}$ H_{3c}, and H_{3d}.

The study was conducted in the service industry, sampling used-car entrepreneurs and owners of used-car lots where no research efforts have previously taken place. Also, the sample was a one time collection of data in one southern metropolitan statistical area of the continental United States. Also, an inappropriate representation of used car dealers with respect to race was not proportionately distributed to get a fair understanding of psychological traits impacting entrepreneur orientations in metropolitan areas where the dealers may be largely African, Hispanic, Asian-American, White or multiracial. Obviously, the findings are inherently limited for generalization purposes.

CONCLUSION

In the used-car industry where the used-car entrepreneur buys quantities of used cars to resell, and the used-car entrepreneurs have no prior knowledge about the state of the used cars; i.e., whether the used cars are good used cars or bad used cars ("lemons"). Regardless of the state of quality of used cars in his or her stock, the entrepreneur is constrained by law to provide a minimum of 30-day warranty on each car sold to any buyer. According to Akerlof (1970), most cars traded will be lemons, and good cars may not be traded at all. The "bad cars" tend to drive out the good (in much the same way that bad money drives out the good money). These points relate to the findings of Palich and Bagby (1995), which state that entrepreneurs rush in to take advantage of opportunities that others fail to see or act upon. Busenitz (1999) proposed that entrepreneurial risk may be explained by recognizing that entrepreneurs used biases and heuristics more, which is likely to lead them to perceive less risk in a given decision situation.

Future data-based studies addressing the impact of psychological traits on entrepreneurial orientations should employ a more representative sample from multiple industries with provisions for inter-industry variations in life cycles. The sample for this study is perhaps acceptable since this is an exploratory study but is far too limited industry-wise to draw any lasting conclusions. Hence, a more representative sample should be drawn to provide stronger results. Therefore, findings are only inferred and should not be interpreted beyond generating hypotheses and/or formulating research questions for future research efforts.

Another issue of major concern is the length of the questionnaire used in this study. Future researchers addressing psychological characteristics and relationships to entrepreneurial orientations should use a shorter questionnaire to improve the mail questionnaire response rate.

Lastly, the psychological construct scales employed in this study have been used in prior entrepreneurship studies. However, the low reliability values for some of the psychological constructs are source of concern. A multiple-item scale should be adapted to measure the respective psychological constructs instead of the single-item scale employed in this study. A multiple-item scale is appropriate for reliability when primary data are collected (Chandler & Lyon, 2001).

A major gap and void in the entrepreneurship literature continue to revolve around the lack of a comprehensive theoretical framework but grounded with accumulative fragmentalism in definitions. Future research efforts should attempt to bridge this gap in the literature.

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AN ANALYSIS OF RESOURCE DEVELOPMENT AND PERFORMANCE IN THE SMALL FIRM

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ABSTRACT

The strategic development of resource stocks and their effects on firm performance was tested in small firms. Specifically, analysis was made of the impact on performance of strategic planning mechanisms (mission statements and strategic plans) and the differential impact of the types of resources available for development (tangible and intangible). Examination was also made of the performance effects of investments in non-professional versus managerial and professional workers. Results show that flexible, short-term strategic planning positively influences firm performance. But, the greatest effect was identified in investments in managerial and professional employees, especially those investments aimed at selection (through unstructured interviews) and later training (after the first year of employment).

Our findings underscore the unique management challenges of small firms. They face a critical reliance on establishing and maintaining informal methods of control and communication while undertaking sensitive investments in resources under conditions of scarcity. Our results point to clear patterns of management and investment in top-performing small firms, and should interest researchers aiming to extend our understanding of small-firm resource development and practitioners attempting to make often difficult resource management decisions.

INTRODUCTION

The resource-based view of the firm, since its inception (Penrose, 1959; Wernerfelt, 1984; Barney, 1991), has focused on the creation of unique stocks of resources in firms. The bundles of resources informing organizations are built up over time (Ghemawat, 1991) and explain the heterogeneity of firms (Barney, 1991), provide protection from imitators (in the best firms) and ultimately result in superior performance (Dierickx & Cool, 1989; Peteraf, 1993; Reed & DeFillippi, 1990). The key resources for maintaining organizational superiority are most often related to human resources in the form of know-how (Teece, 1980; Teece, 1982), whether that be technological or other forms of innovative expertise or be process-oriented abilities in the form of routines (Nelson & Winter, 1982) and knowledge integration (Grant, 1996).

Recent work has added important detail to the resource-based view, focusing on dynamic capabilities, mechanisms by which firms "integrate, build, and reconfigure internal and external competences to address rapidly changing environments" (Teece, Pisano & Shuen, 1997, p. 516). Subsequent research (Eisenhardt & Martin, 2000) has extended the concept of dynamic capabilities to include moderately changing environments by involving the concept of routines (Nelson & Winter, 1982). Whatever the environmental conditions, dynamic capabilities are repositories of organizational learning, functioning as tools "through which the organization systematically generates and modifies its operating routines in pursuit of improved effectiveness" (Zollo & Winter, 2002, p. 340). Managers' over-riding duty is to develop and collect the knowledge that underlies both routines and dynamic capabilities (Grant, 1996).

Indeed, management has always held a special, if not pre-eminent, place in the resource-based view of the firm. The "Penrose effect," identified in the originating work of the resource-based view (Penrose, 1959), points to the direct influence of managerial knowledge on the growth of firms. Four levels of resources have been identified (production/maintenance, administrative, organizational learning and strategic vision resources) that move from lower to higher levels of uniqueness and flexibility and better explain sources of competitive advantage (Brumagin, 1994). Management is fundamental for developing and housing resources in the upper categories. Little surprise should therefore surround the fact that a managerial theory of the firm has been called for by some leading researchers (Bartlett & Ghoshal, 1993), albeit in the large firm.

However, the small firm arguably provides the more promising environment for developing and testing a managerial theory of the firm. First, small firms are extremely sensitive to the presence, skills and activities of managers (Wyer & Mason, 1998) and their high-knowledge (professional) workers (de Kok & Uhlaner, 2001). Second, resources in the small firm are often severely limited. Organizational slack is virtually non-existent in many cases, with often intense pressure put on organizations to achieve greatly efficient and effective allocations of existing resources (Miller & Toulouse, 1986). Therefore, investments required for recruiting, developing and retaining top management and professional workers put considerable pressures on small firms (Hadjimanolis, 2000). Third, the small firm is often burdened with a generic set of resources, notwithstanding their paucity (McCarthy, 2003). Consequently, the small firm is often pressed to develop a unique set of resources and capabilities in order to be differentiated from competitors and to support stronger relationships with customers. The often fungible and unique nature of the knowledge and skills bases of top managers and professionals makes them a likely source of organizational differentiation.

This paper fills a prominent gap in the literature of both the small firm and the resource-based view of the firm by presenting and testing a framework for resource development in small firms, comparing the effects of management and professional workers with other types of resources. The model will be delivered and explained in section one, along with the hypothesized relationships among its key elements. Methods will then be outlined in the second section. The theoretical model

is built primarily from the tenets of the resource-based view of the firm and from recent work concerning high-performance work systems. Section three will include a discussion of the results. The final section contains a description of the limitations of this research paper and closes by offering directions for future research.

THEORETICAL MODEL AND METHODS

Model and Hypotheses

In their ground-breaking article, Bartlett & Ghoshal (1993) outlined the changing, complex environments (both internal and external) commonly being encountered by managers in large international firms. The authors noted that challenges are increasingly being met by attempts to create a new organizational form that offers greater freedom to managers in fostering the crucial processes of renewal, integration and entrepreneurship. At the same time, understanding and study of large organizations was said to require analysis of the perceptions and actions of managers operating in complex systems, their individual businesses.

Small firms, of course, face similar pressures to those of large organizations, but these forces are met in a much more concentrated environment and draw generally from smaller and less distinctive stocks of resources in dealing with them. Moreover, the same point applies to the management and professional talent in the typical small firm, with the degree and depth of specialization usually being far more limited. In the small firm, a single manager or a small cadre must often bear all of the responsibilities that are divided among corps of front-line, middle and top management in large firms.

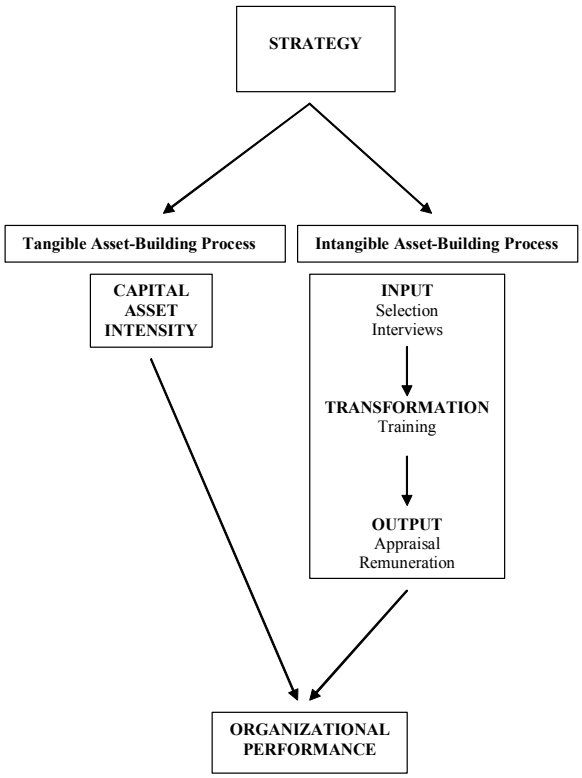
Figure 1 presents a simple framework for understanding resource accumulation and development in the small firm. The process of development is understood to emanate from organizational strategy, whether that be intended (and, therefore, stipulated by detailed planning documents) or emergent (and, therefore, guided by active experimentation and heuristics). Firm resources are divided into two major categories, physical resources and intangible assets (Chatterjee & Wernerfelt, 1991; Teece, 1982) and are posited to provide the primary basis for organizational value-adding activities. More specifically, the build-up of intangible assets within the category of management and professional employees is anticipated to influence performance most profoundly. Finally, in general terms, organizational performance is expected to be a direct outcome of strategy-making and resource accumulation, development and application.

Model and Hypotheses: Strategy

The small firm can pursue two mutually exclusive strategies, the "lifestyle" or the "high-velocity growth" strategy, each of which differ fundamentally in their impact on firm performance

(Timmons & Spinelli, 2004). The former describes a strategy designed to support a host of goals related to the owner's personal enjoyment, which preclude maximizing firm performance. High-velocity growth strategies, by contrast, are employed to enlarge the firm and generate maximal returns. The realization of high rates of profitable growth in small firms is anticipated to demand much more from managerial talent, as well as from all organizational resource stocks. Small firms with active strategic planning and communication are expected to out-perform those without, with many of the formal techniques associated with the process, being key concerns.

Figure 1
Resource Development in the Small Firm



Still more issues compound the complexity of strategic management in small firms. For example, small organizations are typically subjected to a maelstrom of outside pressures that sometimes deny the opportunity for the strategy formulation and formal planning techniques that are routinely undertaken in large organizations (Robinson & Pearce, 1984). Resources, both

financial and managerial, are often simply not present in sufficient depth in the small firm. Moreover, the close connection of the small organization and its environment – again, a partial function of resource constraints and therefore organizations' inability to absorb shocks – dictates that flexibility and dexterity remain basic strategic bywords (Matthews & Scott, 1995). The predominant expression of strategy is through activity rather than conception (Bhide, 1994). Therefore, because of both their resource demands and their perceived rigidity, the composition of a broad set of formal planning documents is not expected to be positively associated with organizational performance (Martin & Staines, 1994; McCartan-Quinn & Carson, 2003). The crucial need to adapt mitigates the need to state a small firm's plans in minute detail at any single point in time. However, statements of purpose or vision, sufficiently adaptable for the uses of small firms, have been connected to success (Stonehouse & Pemberton, 2002). Stated formally,

H1: A written mission statement is positively associated with organizational performance.

Strategy is expected to guide the successful small firm, with informality a distinctive characteristic, in contrast to the large organization. The expression of strategy is more likely to be a function of top leadership (Gibb, 1997; Gibb, 2000; Miller & Toulouse, 1986), organizational culture (Gibb, 2000) and direct, informal communication (Miller & Toulouse, 1986). Only general guiding instruments, like mission statements, and operational documents like short-term, written strategic plans should therefore offer managers more traction in dealing with their situations. Stated formally,

H2: A written strategic plan for the coming year is positively associated with organizational performance.

Model and Hypotheses: Capital Asset Accumulation

The resource poverty common in small firms has already been established. However, the accumulation of distinct constellations of productive resources has been connected to top performance, especially when the resources are unique and their "appropriability" is tightly controlled (Barney, 1991). This control can be especially profitable if first-mover status, patents, or other kinds of restrictions protect resources with the most sought-after qualities (Conner, 1991; Grant, 1991; Miller & Shamsie, 1996). Assuming the constraints of the small firm and the rationality and profit-orientation of management (through the presence of strategic planning), investments in physical assets will develop unique and valuable stores. Therefore,

H3: Capital Asset accumulation, at rates greater than industry participants, will be positively associated with organizational performance.

Model and Hypotheses: Human Resource Management

Important work offered insights into "human resource architecture," a framework for understanding how organizations best arrange employment relationships (Lepak & Snell, 1999). Human resource architecture draws from transaction cost economics, human capital theory and the resource-based view of the firm, pointing to the importance of strategy in combination with the uniqueness and value of human capital. Especially crucial to the construction of the appropriate architecture is the use of costly internalization and investment only in human resources that exhibit high levels of uniqueness and value. The construction of high-performance work systems (for example, Delaney & Huselid, 1996; Delery & Doty, 1996; Way, 2002) offers guidance for understanding how activities related to human resource management positively impact the value of employees and the ability to generate a competitive advantage. Therefore,

H4: Investment made in human resources is positively associated with organizational performance.

The administration of human resource investments can also reasonably be assumed to affect organizational performance. Figure 1 employs a simple transformation model that reflects recent research recognizing human resource development through employee selection, development and use (Hatch & Dyer, 2004; Koch & McGrath, 1996; Snell & Dean, 1992). In elemental language, firms that are able to select (through screening tests and interviews), develop (through training) and retain (supported by performance appraisal and remuneration) their employees most effectively build the key, inimitable resources essential for competitive advantage (Dess & Lumpkin, 2003). Formally,

H4a: The use of screening tests is positively associated with organizational performance.

H4b: The use of screening interviews is positively associated with organizational performance.

H4c: The use of formal training (in the first year) is positively associated with organizational performance.

H4d: The use of formal training (after the first year) is positively associated with organizational performance.

H4e: The use of formal performance appraisal is positively associated with organizational performance.

H4f: The use of pay-for-performance systems is positively associated with organizational performance.

Together, human resource selection, development and engagement represent a transformational process that is expected to increase the value and uniqueness of a key factor in organizations (Hatch & Dyer, 2004). Moreover, in the small firm, the definition and focus of firm activities is doubly critical, given the tenuous nature of its existence. The desire to build inimitable, valuable resources that secure a defensible competitive advantage is paramount for high growth and profitability. The presence of resources with the desired profile can be expected to affect the firm more profoundly than in large and, especially, diversified firms. Given the general scarcity of valuable resources in small firms, the possibility exists that the two major types of human resources (managerial & professional and non-professional) will offer differential total returns and unequal returns from individual human resource activities. Our analysis will allow an assessment of the relative impact of investments in managerial and professional workers and in non-professional workers.

Sample

Survey data was obtained from a group of small businesses in Canada. One of the challenges of studying small businesses is defining them. Although other measures, such as sales volume or asset accumulation, have been utilized in a few research examples (see McCartan-Quinn & Carson (2003) and Ibrahim & Goodwin (1986) for more information), the criterion most utilized for assessing organizational size is the number of employees. Yet, general agreement has not been reached about what number of employees constitutes a small organization. For example, the small business has been defined in the literature as entities employing a range of 500 or fewer employees (Ibrahim, Angelidis & Parsa, 2004; Matthews & Scott, 1995), 250 employees or fewer (Gudmundson, Tower & Hartman, 2003) or 50 or fewer employees (Borch, Huse & Senneseth, 1999).

We chose organizations with fewer than 100 employees as our definition of the small firm. This description falls conservatively within the range exhibited in the literature and has been the criterion applied in a number of papers (for example, Gray, Densten & Sarros, 2003; Olson & Gough, 2001; Hadjimanolis, 2000). As well, the definition is in agreement with that utilized by the Government of Canada (Industry Canada, 2003).

The survey was delivered by telephone, using a list purchased from Dunn & Bradstreet, a business-information company. Interviewers asked to speak with the most knowledgeable person regarding company practices (usually a top manager/owner). Results were obtained from 98 organizations, representing a broad cross-section of Canadian small businesses and resulting in a 20 percent response rate.

Measures: Firm performance

A subjective measure of organizational performance was chosen for the following reasons. First, firm performance is a multi-dimensional construct (for example, Meyer & Gupta, 1994; Rogers & Wright, 1998), a challenging entity to measure accurately. Industry-related factors often influence the performance outcomes of firms, making the comparison of financial data across diverse industry settings sometimes misleading (Covin & Slevin, 1989; Sapienza, Smith & Gannon, 1988). Second, objective measures of performance are often more difficult to obtain for small firms for a number of reasons. Managers of small businesses often display an unwillingness to divulge information about their organizations, especially sensitive financial data (Litvak, 1976; Fiorito & LaForge, 1986). This point is made even more important by the fact that small firms are overwhelmingly privately held. Therefore, financial data is not available to the public and it is not possible to check the accuracy of responses by cross-referencing filing data (Covin & Slevin, 1989). Finally, objective data, even when they are available, can only be interpreted with great care because of the wide divergence of business practices and goals in the small firm (Cooper, 1979).

Subjective measures of performance capture the degree to which the firm is producing outcomes that are necessary for the attainment of stated goals and objectives (Gupta & Govindarajan, 1984; Kaplan & Norton, 2001; Rogers & Wright, 1998; Steers, 1975; Way & Johnson, 2005). Furthermore, subjective measures of firm performance have been found to be closely correlated with objective measures (Dess & Robinson, 1984; Robinson & Pearce, 1988; Venkatraman & Ramanujam, 1986).

Our measure of performance effectiveness employed a methodology similar to that used by Gupta & Govindarajan (1984), Covin & Slevin (1989), and Miles, Covin & Heeley (2000). Respondents are first asked to indicate on a 5-point Likert-type scale, ranging from "of little importance" to "extremely important," the degree of importance their firms' top managers attach to nine outcomes. They are as follows: (1) sales level, (2) sales growth rate, (3) cash flow, (4) gross profit margin, (5) net profit from operations, (6) profit-to-sales ratio, (7) ability to fund business growth from cash flow, (8) return on investment, and (9) change in (a) the value of the firm (in private firms) or (b) share price (in public firms). Respondents then indicate, again on a 5-point Likert-type scale, this time ranging from "highly dissatisfied" to "highly satisfied," the extent to which their firms' top managers are satisfied with the firm's performance in the nine performance outcomes. The firm effectiveness measure is the sum of the nine "satisfaction" scores multiplied by their corresponding "importance" scores. The aggregate measure captures the degree to which firm outcomes correspond to the attainment of a firm's broad-based goals and objectives.

Measures: Independent Variables

Single survey items corresponded to the use or non-use of relevant practices. For example, concerning their strategic planning practices, respondents were asked, "does your firm have a written mission statement?" and "has your company produced a written strategic plan for the coming year?" The relative capital intensity of firms was assessed by asking respondents to compare "your firm's total investment (total dollars) in fixed capital stock (for example, machinery, buildings, etc.)" with competitors, using a five-point scale ranging from "well below average" to "well above average." Human resource management practices were also ascertained through single items related to the use of screening tests, interviews, training (in the first year and after the first year), performance appraisal and pay-for-performance. All questions concerning human resource activities were assessed separately for managerial and professional employees (as one group) and for non-professional workers (as a second group).

Measures: Control Variables

A number of factors potentially affecting performance required controls. The list begins with the management autonomy of the firm, with independent organizations reasonably expected to develop and deploy resources in markedly different ways from franchised, networked, or otherwise controlled firms (Dollinger, 2003). A dummy variable was constructed in which independent firms were designated "1" and companies connected to outside actors were labeled "0." The age of the firm (measured as the number of years since founding) was also subject to control, because of findings connecting organizational age (especially measured through life-cycle stage) with differential management challenges (Dodge & Robbins, 1992; Hanks & Chandler, 1994) and, ultimately, with variance in organizational performance (Youndt, Subramaniam & Snell, 2004). Finally, organizational size, even for firms of 100 employees or fewer, has also been shown to differentially affect human resource management, one of the central focuses of this study (Hornsby & Kuratko, 1990). Organizational size was measured as the number of employees.

Analysis

Hypothesis testing involved the use of hierarchical multiple regression. Control variables were loaded in first. Model 1 was then augmented by variables related to organizational strategy (Model 2), capital investment (Model 3), investments in non-professional employees (Model 4) and then, separately, by managers and professional employees (in Model 5). Descriptive statistics and

regression results are reported in Tables 1 and 2, respectively. Means and correlation statistics are set out in a staged manner, reflecting the introduction of data in Models 4 and 5.

RESULTS

Demographics

As stated, we received 98 usable responses to our survey requests, with all sizes of the small firm represented. Of those responding, 17% employed fewer than 20 employees, 47% employed between 20 and 39 people, 21% employed between 40 and 59, seven percent employed between 60 and 79, and the remaining seven percent employed between 80 and 99 people. Ten percent of the firms that responded generated revenues up to $100,000; 20% generated between $100,000 and $200,000; 37% generated between $200,000 and $500,000; and 23% generated revenues between $500,000 and $1 million. The remaining 10% of the responding firms had revenues above $1 million.

The sample firms also represented a wide cross-section of locations and industries. In terms of geographic dispersion, firms that responded to our survey requests broadly mirrored the country's economic centers. Half of the companies returning surveys were from Ontario, 14% were from Alberta, and the remainders were from the other provinces across Canada. The only province not represented was New Brunswick. As well, the organizations represented a large number of industries. The highest percentage of sample firms were engaged in sundry manufacturing (29%) and service industries (28%). A further 14% and 13% were focused on retail and wholesale industries, respectively, while nine percent was linked to the transportation industry and five percent came from financial services.

Analysis

The analysis produced a complex mixture of supported hypotheses, significant unanticipated results and unsupported hypotheses. But, a discernable pattern exists in the results. Table 3 brings together the hypotheses, posited relationships and the findings.

First, we note that not one of the control variables significantly affected firm performance. Second, of the two variables related to strategic management, only the use of strategic plans received support. Third, capital intensity was also not found to significantly impact firm performance. Finally, not one of the variables related to developing non-managerial or non-professional workers was found to significantly influence performance.

Table 1: Descriptive Statistics & Correlation Coefficients

Managerial and Professional Workers	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12
1. Firm Age	22.13	18.97	1.00											
2. Firm Size	36.90	21.36	-0.10	1.00										
3. Firm Independence	0.83	0.38	0.05	0.01	1.00									
4. Mission Statement	0.62	0.49	-0.04	0.12	-0.24 ***	1.00								
5. Strategic Planning	0.51	0.50	-0.10	0.11	0.01	0.46 ***	1.00							
6. Capital Intensity	3.11	0.94	0.09	0.04	0.02	0.00	0.18 **	1.00						
7. Screening Tests	2.49	2.09	0.001	0.09	0.01	0.05	0.14 *	0.02	1.00					
8. Interviews	2.66	0.85	-0.07	0.08	-0.15 *	0.43 ***	0.36 ***	0.02	0.21 **	1.00				
9. Training (in 1st Yr)	4.64	2.43	-0.04	0.12	0.06	0.09	0.36 ***	-0.03	0.17 **	0.32 ***	1.00			
10. Training (after 1st Yr)	4.04	2.44	-0.1	0.08	-0.04	0.19 **	0.42 ***	-0.08	0.12	0.42 ***	0.67 ***	1.00		
11. Performance Appraisal	3.85	2.30	0.06	0.04	0.08	0.25 ***	0.17 *	0.18 **	0.11	0.25 ***	-0.05	0.11	1.00	
12. Performance-based Pay	4.33	2.10	0.02	0.01	-0.11	0.33 ***	0.15 *	0.11	0.02	0.22 **	0.23 **	0.10	0.43 ***	1.00
Non-professional Workers	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12
7. Screening Tests	2.72	2.18	-0.09	0.13	0.03	0.02	0.07	-0.04	1.00					
8. Interviews	2.60	0.85	-0.00	0.04	-0.25 ***	0.32 ***	0.26 ***	0.04	0.22 **	1.00				
9. Training (in 1st Yr)	4.57	2.39	-0.15 *	0.05	0.03	0.09	0.33 ***	0.12	0.18 **	0.32 ***	1.00			
10. Training (after 1st Yr)	3.66	2.39	-0.05	0.04	-0.02	0.17 **	0.43 ***	0.03	0.18 **	0.29 ***	0.69 ***	1.00		
11. Performance Appraisal	3.85	2.32	0.14 *	-0.16 *	-0.08	0.27 ***	0.28 ***	0.24 ***	-0.08	0.49 ***	0.05	0.19 **	1.00	
12. Performance-based Pay	4.14	2.20	0.05	-0.16 *	-0.08	0.19 **	0.11	0.11	-0.10	0.20 **	0.11	0.06	0.40 ***	1.00

The number of observations is 98. ***p<0.01; **p<0.05; *p<0.10.

Table 2: Linear Regression Results					
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**
Firm Age	.002 (.018)	.022 (.215)	.005 (.049)	-.004 (-.041)	.001 (.007)
Firm Size	.097 (.920)	.087 (.828)	.082 (.783)	.077 (.693)	.103 (1.057)
Firm Independence	-.04 (-.377)	-.075 (-.694)	-.072 (-.676)	-.088 (-.772)	-.082 (-.801)
Mission Statement		-.132 (-1.09)	-.114 (-.945)	-.105 (-.817)	-.102 (-.815)
Strategic Planning		.253* (2.145)	.216* (1.803)	.224* (1.666)	.277** (2.224)
Capital Intensity			.154 (1.458)	.176 (1.554)	.127 (1.258)
Screening Tests				.094 (.833)	.182* (1.833)
Interviews				-.092 (-.625)	-.358*** (-3.015)
Training (in 1st Yr)				-.164 (-1.001)	-.351** (-2.429)
Training (after 1st Yr)				.127 (.804)	.298** (2.086)
Performance Appraisal				-.025 (-.166)	.092 (.781)
Performance-based Pay				.055 (.464)	.164 (1.389)
R^2	.011	.060	.083	.113	.268
R^2 Adj.	-.022	.007	.019	-.019	.160
ΔR^2	.011	.049	.022	.030	.186
Model F	.329	1.125*	1.304	.857	2.476***
The number of observations is 98. t-values are in parentheses. ***p<0.01; **p<0.05; *p<0.10.					

By comparison, while the case of managerial and professional workers was more complex, a number of hypotheses were supported. The uses of screening tests and training after the first year of employment were found to positively impact performance. However, formal interviewing techniques and training in the first year of employment, while they did significantly influence firm performance, were also discovered to have a negative influence rather than the positive effect that was predicted. The results of the study are discussed in greater detail below.

DISCUSSION

In general terms, our findings clearly identify, first, value in informality and flexibility in small-firm strategic planning and, second, human resource development outcomes that appear heavily affected by organizational size. Results support our model, further suggesting that top-performing small firms place managers and professionals at the center of their investment patterns. Our findings underscore contentions that management and professional workers more often contain

the requisite hard-to-copy levels of education and technical expertise that are essential for the creation of competitive advantage through human resources (Barney, 1986; Hitt, Bierman, Shimizu & Kochhar, 2001). Our results should be of interest to both researchers in the resource-based view of the firm and to those studying high-performance or -investment work systems. As well, insights are available for practitioners who face the commonplace and difficult decisions concerning investment and development under conditions of scarcity.

Table 3: Hypotheses and Results

Hypotheses		**Support and Significance**	
H1:	A written mission statement is positively associated with organizational performance	No	
H2:	A written strategic plan for the coming year is positively associated with organizational performance	Yes ($\alpha = 0.10$)	
H3:	Capital Asset accumulation, at rates greater than industry participants, will be positively associated with organizational performance	No	
H4:	Investment made in human resources is positively associated with organizational performance	**Non-Mgmt**	**Mgr's and Prof's**
H4a:	The use of screening tests is positively associated with organizational performance	No	Yes ($\alpha = 0.10$)
H4b:	The use of screening interviews is positively associated with organizational performance	No	Yes (not in the direction predicted) ($\alpha = 0.01$)
H4c:	The use of formal training (in the first year) is positively associated with organizational performance	No	Yes (not in the direction predicted) ($\alpha = 0.01$)
H4d:	The use of formal training (after the first year) is positively associated with organizational performance	No	Yes ($\alpha = 0.01$)
H4e:	The use of formal performance appraisal is positively associated with organizational performance	No	No
H4f:	The use of pay-for-performance systems is positively associated with organizational performance	No	No

The operational orientation of strategy-making in the small firm was confirmed through the use of one-year strategic plans. The explanatory power of Model 2 was clearly a function of the impact of the strategic planning process on organizational performance. Surprisingly, significant

effects on performance were not detected from the presence of an organizational mission statement or from above-average physical asset accumulation.

Investments in managerial and professional employees exposed strong and significant effects on organizational performance. Model 5 was significant at the 0.01 level. The change in explained variance, from Model 3 to Model 5, was a robust 0.186. By contrast, the introduction of investments in non-professional human resources (in Model 4) did not significantly impact performance. Furthermore, not a single variable connected to non-professional development significantly affected firm performance.

A number of variables related to human resource management of managerial and professional employees achieved significance. Again, a number of the results were surprising. First, screening tests were weakly, but significantly, connected to stronger performance. Second, interviewing played a more significant role in organizational performance, but not as expected. High-performing small firms appear to make primary use of unstructured interviews, rather than progressive, structured interviews. A likely explanation for the use of unstructured interviews is that managers are most concerned with the "fit" of personalities when assessing possible employees, with the completion of prospective job requirements being a secondary issue. Furthermore, successful firms could make use of formal screening tests, an alternative way of gathering job-related skills data. Third, training was found to have a differential impact on performance. Top-performing small firms trained workers only after their first year of employment. Thus, highly evolved interview techniques and the training of managers and professionals in the first year negatively impacted performance. These findings, again, seem to point out the general need in small firms to maintain simple organizational procedures and to conserve resources, for example, by relying on newly hired skilled resources to feed the organization, rather than vice versa. Finally, performance appraisal and performance-based pay did not significantly affect organizational performance. The results may be explained by the presence of professional norms and other forms of self-appraisal that, at least partially, mitigate the need for more formal appraisals and incentives. Organizational culture and other informal means of "policing" may also be affecting implementation and outcomes.

Our results compare favorably with those focused on high-performance or -incentive work systems (for example, Delaney & Huselid, 1996; Delery & Doty, 1996; Way, 2002), providing additional insights on the individual effects of a number of human resource activities. Support was found for the positive impact of human resource development, in the case of management and professional workers, and for the build-up of dynamic capabilities and valuable asset specificity associated with those resources.

However, our findings also offer greater insight into the individual payoffs of the investments. For example, the development of expertise in the selection and subsequent training of managers and professionals is suggested to be especially effective. The connection of strategy and the resource-development process appears to be inseparable, especially as strategy formulation is understood as inseparable from implementation.

Our findings are, therefore, also relevant for small-firm managers who are caught, often daily, in negotiating trade-off relationships among their investments. Analysis plainly supports the creation of strategic planning processes that focus on managers and professionals. Furthermore, investment in the development of managers and professionals suggests the strongest returns from leading capabilities in selection and transformation, rather than use and monitoring.

Limitations and Further Research

This research requires some caution in interpretation and in the application of the findings to all small firms. Our theoretical framework and analysis was a heavily simplified reflection of the complex reality of small firms. For example, our findings can identify for researchers and managers the importance of investments in managers and professionals. But, other explanatory factors have been left unexplored. Indeed, in only one example, further research is needed into non-formal, culture-based means of human resource engagement and monitoring in small firms. The role of managers and professionals in the creation of culture and in its communication and transference only adds to the complexity of undertaking significant research. As well, the general interaction of strategy and resource development in small firms must be better understood. Causality involving strategy and resource development almost certainly does not run in only one direction. More needs to be known about the strengths of the individual effects and the nature of the relationships, even in a simple theoretical framework and a carefully reduced set of organizational variables.

A number of other limitations in our research must be acknowledged, besides the relatively simple theoretical framework that was being tested. Most obviously, a relatively small sample size was employed in this study. Obtaining the involvement of small-business managers remained a challenge; respondent resistance appears simply an unavoidable fact of life for small-business researchers. Hopefully, the practical implications of this research, after they have been fed back to participants and combined with similar studies, can have a positive impact.

In another vein, a broad cross-section of Canadian firms is represented in our sample, but the number of respondents is slight for some provinces, and some industries are under-represented. But, again, enough variety in the industries and the nature of the businesses being surveyed appears present, at least to an acceptable degree.

But, of the limitations of our paper, the most important to us were those related to analysis and theoretical development because they also offer direction for the future. The development of sounder theory and the extension of analysis will guide successive rounds of research. We believe they can be profitably built on the conclusions of the present paper, moving to a theory of the small firm that clearly reflects the central performance effects of developing managerial and professional human resources.

ENDNOTES

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PUTTING ENTREPRENEURSHIP IN ITS RIGHTFUL PLACE: A TYPOLOGY FOR DEFINING ENTREPRENEURSHIP ACROSS PRIVATE, PUBLIC AND NONPROFIT SECTORS

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ABSTRACT

Entrepreneurship has played an important role in modern economies and societies. Entrepreneurs have become forces of change worldwide. Educators champion entrepreneurship education. Corporations encourage innovation and entrepreneurship. Universities participate in technology transfer and commercialization. Policymakers implement entrepreneurship policies and programs. Nonprofits seek entrepreneurial solutions to achieve their missions. The public, private, and nonprofit sectors have all jumped on the entrepreneurship bandwagon.

However, the fundamental question 'what is entrepreneurship?' remains unclear. This paper offers an answer grounded in the basic element of entrepreneurship – the generation of value through change. A classification system is presented that can be used to categorize entrepreneurial activity based on the type of value generated – economic or social – and the presence or lack of an organizational context within which it is pursued. This results in a four-cell typology that puts entrepreneurship in its place as (1) social intrapreneurship, (2) grassroots social entrepreneurship, (3) corporate intrapreneurship, or (4) independent entrepreneurship. The paper also includes a discussion of opportunity recognition and individual or organizational necessity as drivers of entrepreneurship. This paper's entrepreneurship framework, therefore, provides a multidimensional approach to categorizing entrepreneurship, to better understand entrepreneurial activities based on where they fall within the entrepreneurship typology and their drivers.

INTRODUCTION

Entrepreneurship has been an important driver of economic and social growth both in the U.S. and worldwide. Nearly seventy percent of the U.S. economic growth can be attributed to entrepreneurial activity (Reynolds, Hay & Camp, 2000). Over the past twenty years, two-third of all jobs and differences in economic growth rates among industrialized countries can be attributed to entrepreneurship (NCOE, 2002). Sixty seven percent of all inventions (Zacharakis, Reynolds & Bygrave, 2001) and ninety five percent of all radical innovations created since World War II

(Timmons, 1999) originated in entrepreneurial firms. Some examples of entrepreneurship-driven innovation include the heart valve, assembly line, air conditioning, artificial skin, hydraulic brake, and soft contact lenses (Slaughter, 1996; Timmons, 1999).

Entrepreneurship has not been limited to the private sector. Innovation and entrepreneurship are not, and have not been, foreign to government, nonprofit, and civic organizations. The U.S. government, for example, has played an important role in financing much of the innovations now impacting society. Government research and government funding instigated the creation and development of innovations such as the mouse and the Internet. The great leaps and bounds made in the sciences and humanities have rarely taken place exclusively in the private sector. The space program, modern medical breakthroughs, and many other scientific and social developments have been conducted under the umbrella of government entrepreneurship.

Contrary to popular opinion, the public sector is a natural innovator. The greatest innovation in American history was the writing of the U.S. constitution and the development of modern democracy. There are many other cases of government innovations. The field of management has many examples of public sector innovation. Frederick Taylor, the father of Scientific Management, used as his most prominent examples of scientific management the non-profit Mayo clinic and the government-owned and managed Watertown Arsenal. The first real application of the term "manager" in the context we understand it today, was not in the business world; it was used to refer to the city manager, an American innovation in the way cities were managed. The first conscious and systematic application of management principles was also not in the private sector. Instead, it can be attributed to the reorganization of the U.S. Army during the Roosevelt administration.

Today, all sectors of society and the economy have become hotbeds for entrepreneurship. Within schools and academic institutions, educators and administrators have become champions of entrepreneurship education. Elementary education institutions are introducing entrepreneurial awareness programs. Higher education institutions have begun offering majors and minors in entrepreneurship. Colleges and universities have also moved beyond the domains of research and teaching to participate in technology transfer and commercialization. Corporations are encouraging entrepreneurial thinking and innovation within their organizations. Policymakers are implementing policies and programs to support and encourage entrepreneurial activity. Government agencies have had to seek out entrepreneurial solutions for providing public services in the face of dwindling resources and increased demand for services. Not-for-profit organizations have become more engaged in being entrepreneurial in pursuit of their mission and goals.

Social entrepreneurs – those involved in supporting public sector entrepreneurship – have many of the same motivations as their for-profit counterparts. They are creative and innovative and are change agents driven by the need to create something new or to improve something old. But, unlike their business counterparts who pursue the financial bottom line, social entrepreneurs instead pursue a broad range of social and/or public outcomes – ranging from undertaking new approaches to economic development to ensuring the efficient provision of health and human services. Despite

these similarities and the growth of entrepreneurship in the public and nonprofit sectors, there remains a wide chasm between private and social entrepreneurship. Researchers in business, economics and psychology, for example, have traditionally focused on entrepreneurial activities in the private sector. Researchers in the field of public administration, government, and political science, on the other hand, have focused on social entrepreneurship. This gives the appearance that the two forms of entrepreneurship are entirely distinct and incompatible.

We argue that this gap can be blamed on the absence of an encompassing definition of entrepreneurship, coupled with the inability to distinctly categorize different types of entrepreneurial activity. This paper brings the two forms of entrepreneurship together by presenting a conceptual framework for defining entrepreneurship that is general enough to encompass both private and social entrepreneurship. This framework involves a two-dimensional classification system based on the type of value being created and the pre-existing organizational context within which entrepreneurship is pursued. A typology for defining and classifying entrepreneurship is developed based on this classification system and examples of each category of the typology are presented. This paper also discusses two driving forces – opportunity recognition and individual or organizational necessity – behind entrepreneurship.

The goal of this paper is to develop a conceptual framework for understanding and defining entrepreneurship. This is accomplished by: (1) exploring existing definitions of entrepreneurship; (2) developing a hierarchical classification system for categorizing entrepreneurial activity; (3) creating a typology of entrepreneurial activity based on the classification system; (4) analyzing and evaluating the classification system and the resulting typology; and (5) introduce the drivers behind change and entrepreneurial activity.

GRASPING BLINDLY FOR THE DEFINITION OF ENTREPRENEURSHIP

There is a famous parable about the blind men who encounter an elephant for the first time. During the encounter, each man, having felt only a single feature of the animal, loudly proclaimed the nature of the elephant. The first man, after feeling the elephant's leg proclaimed that the elephant was simply a large column. The second man, having touched the elephant's ear countered that it was a large fan. The remaining men, having felt the trunk, tail, and tusk, boldly stated that the elephant was nothing more than a large snake, a piece of rope, and a sword, respectively. To a certain degree, each man was correct since they each communicated that part of the elephant he had felt, but neither was able to describe the actual elephant, and all were unable to comprehend the animal in its entirety.

The extent of our understanding of entrepreneurship parallels this story of the blind men and their encounter with the elephant. The fundamental question of 'what is entrepreneurship?' conjures a variety of images and keywords. Some researchers and policymakers associate entrepreneurship with innovation and technology, others view entrepreneurship as being related to self-employment,

and some equate entrepreneurship with small- and medium-sized businesses. Advocates for entrepreneurship education argue for entrepreneurship as a mindset that includes recognizing opportunities, marshalling resources, and taking risks. In a broader sense, some argue that entrepreneurship is all about the creation of new businesses. Yet, others counter that entrepreneurship is not limited to organization creation. In the same way that the elephant was a column, fan, snake, rope, or sword, entrepreneurship has meant different things to different people. This definitional issue is not lost among entrepreneurship researchers. Many have acknowledged that entrepreneurship has served as a coat of many colors, becoming a "broad label under which a hodgepodge of research is housed" (Shane & Venkataraman, 2000, p. 217). The lack of an accepted definition of entrepreneurship takes on an even greater significance with the increased focus on social entrepreneurship, and the widening of the perceived chasm between social entrepreneurship and the traditional private sector entrepreneurship.

DEFINING ENTREPRENEURSHIP

One of the largest obstacles to developing an accepted general framework for the study of entrepreneurship is the lack of an established definition. Many researchers have acknowledged that a concise and universally accepted definition of entrepreneurship has not yet been reached. There does appear to be some agreement regarding the multidimensionality of the entrepreneurship phenomenon. Any construct used to define entrepreneurship must therefore incorporate these many dimensions. The conceptual framework for understanding entrepreneurship developed in this paper addresses the issue of multidimensionality by focusing on the type of value creation pursued by entrepreneurial activity, the organizational context, and the drivers behind entrepreneurship.

Single standing definitions of entrepreneurship abound in existing literature going as far back as the 16th century (for an in-depth review of the historical perspectives and definitions of entrepreneurship, see Hoselitz (1951) or Long (1983)). In the early 1700s, Richard Cantillon associated entrepreneurship with risk taking and defined it as self-employment. Jean Baptiste Say, whose views of entrepreneurship stemmed from his observations during the industrial revolution, defined the entrepreneur as an adventurer or master-manufacturer whose primary role was to bring together the factors of production. Eighty years later, Alfred Marshall, in response to the rise of the professional middle management class, defined entrepreneurship in such a way as to place entrepreneurs in a category of their own as the undertakers of new business. Entrepreneurship took on a different spin in the 20th century when the notion of the entrepreneur as an innovator was introduced by Schumpeter, who defined entrepreneurship as the novel exploitation of factors of production to bring into existence new firms and new industries. Frank Knight in his 1921 work *Risk, Uncertainty and Profit* introduced profit as being the reward for entrepreneurial actions and risk bearing as the primary economic function of the entrepreneur.

Since the work of Knight and Schumpeter, modern researchers have developed several variations of the definition of entrepreneurship. One definition is that by Cole (1959) who described entrepreneurship as "the purposeful activity … of an individual or a group of associated individuals, undertaken to initiate, maintain, or aggrandize a profit-oriented business unit for the production or distribution of economic goods and services." Vesper (1982) defined entrepreneurship as the process by which new organizations come into existence. Several other variations in the definition of entrepreneurship include: (1) entrepreneurship as the ability to create and build something from practically nothing by initiating, doing, achieving, and building an enterprise or organization (Timmons, 1986); (2) entrepreneurship as the process through which something new and valuable is created by devoting the necessary time and effort, assuming accompanying financial, psychic, and social risks, and receiving the resulting rewards of monetary and personal satisfaction and independence (Hisrich & Peters, 1998); (3) entrepreneurship as "the how, by whom, and with what effects opportunities to create future goods and services are discovered, evaluated, and exploited" (Shane & Venkataraman, 2000, p. 218); and (4) entrepreneurship as being associated with searching for change, responding to it, and exploiting such change as an opportunity (Drucker, 1985).

Glancey and McQuaid (2000) suggest that several themes emerge from the varying definitions and perspectives of entrepreneurship used in the existing body of literature. The first theme, entrepreneurship as a function of the economy, views entrepreneurs as economic agents that play the role of (1) risk-taker who ensures that risky opportunities are taken advantage of; (2) resource allocator or middle man who moves factors or production to areas of greater productivity and yield; and (3) innovators and creators who do things differently or more efficiently. In the second theme, entrepreneurship is viewed as the process of business start-up or new organization creation. From this perspective, entrepreneurship is concerned with the creation of new ventures regardless of motivation or growth orientation. Literature falling under the third theme of entrepreneurship concentrate primarily on the ownership and management of small and medium-sized enterprises, with an emphasis on the self-employment aspects of these businesses. At the heart of the fourth definitional theme is the concept of entrepreneurship as a set of personal characteristics or as a personality type. This approach to entrepreneurship incorporates the basic question that has traditionally been the focus of researchers, namely 'who is an entrepreneur?' Entrepreneurs are defined according to their personal characteristics or personality, in addition to the social and institutional context within which the entrepreneurs operate. The final theme of entrepreneurship identified by Glancey and McQuaid (2000) is that of entrepreneurship as a form of behavior, which is defined in terms of what entrepreneurs do.

Similarly, Cunningham, and Lischeron (1991) describe several schools of thought on entrepreneurship. These schools of thought closely parallel the common themes introduced by Glancey and McQuaid (2000). The four categories under which these schools of thought can be placed, are: (1) personal qualities – including the "great person" and the psychological characteristics schools of entrepreneurship; (2) recognizing opportunities – the classical school of

entrepreneurship; (3) acting and managing – the management and leadership schools of entrepreneurship; and (4) reassessing and adapting – the intrapreneurship school of thought.

While each perspective or school of thought offers the opportunity for different types of research, there is still a need to move towards a more holistic view of entrepreneurship. We argue that two underlying themes behind all these perspectives are: (1) value creation, and (2) change. Entrepreneurship through the reallocation of resources – a change in the way resources are utilized – yields value creation through increased productivity and efficiency. Profit as the reward for entrepreneurial activity is also the generation of new economic value for the entrepreneur. Entrepreneurship also involves the pursuit of value resulting from recognizing and taking advantage of opportunities, which are achieved through the entrepreneur acting as a change agent. Reassessing and adapting through corporate innovation and intrapreneurship, on the other hand, is an effort to generate value for the organization and its stakeholders. Entrepreneurial activity, in turn, can be defined as those change-driven activities that create value or that facilitate the successful generation of value. Entrepreneurs can be defined as agents of change pursuing value generation. The classification system and typology of entrepreneurship introduced in this paper is based on value creation and change as the defining elements common to all forms of entrepreneurship.

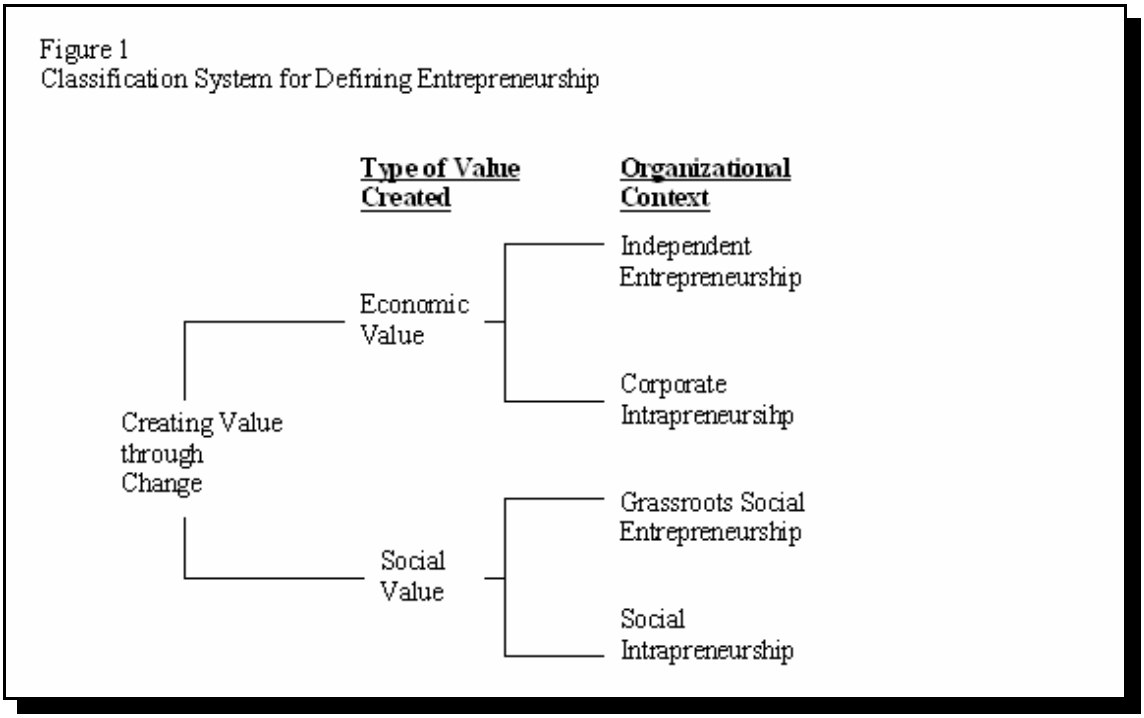
ENTREPRENEURSHIP CLASSIFICATION SYSTEM AND TYPOLOGY

The first step in developing a conceptual framework for defining entrepreneurship is constructing a classification system based on different dimensions of entrepreneurship. Using this classification system allows for the arrangement of the different types of entrepreneurship and associated entrepreneurial activity into different taxa, or sets of entities that are sufficiently different from entities in other sets. The different entrepreneurship types are arranged into taxa based on two fundamental characteristics: (1) the type of value being created, and (2) organizational structure. This classification system is explained in the following section and is presented diagrammatically in Figure 1.

The most basic distinction between different types of entrepreneurship is the type of value being created as a result of the entrepreneurial activity. The type of value created by the pursuit of entrepreneurship can be either economic, such as profit or financial independence, or social, such as social mobility or social equity. Most private sector entrepreneurship can be classified as generating economic value. Social entrepreneurship, as the name implies, can primarily be classified as generating social value. The drive for profit generation is the typical example of economic value. Another example of entrepreneurship in pursuit of economic value is self-employment, where the individual undertakes entrepreneurial activity to generate income for himself/herself. Social value, on the other hand, is the outcome of interest for social entrepreneurs. Social value-laden outcomes may include reduced poverty, increased social capital, better health or improved environmental conditions. This classification is important because the value motive behind the pursuit of

entrepreneurial activity and entrepreneurship necessarily defines how and where it is undertaken. Social value creation has traditionally been the purvey of grassroots and community leaders, public officials, government agencies, and nonprofit organizations. Business and industry, on the other hand, have often been driven toward economic-value oriented entrepreneurship.

Figure 1
Classification System for Defining Entrepreneurship



Entrepreneurship and entrepreneurial activity can be further classified according to the organizational structure within which they are initiated. The criterion for classification is whether entrepreneurship is pursued within an existing organization structure or by an individual or a group of individuals without any pre-existing organizational affiliations. This classification is important because research has shown that there are differences between the performance of entrepreneurial undertakings initiated by individuals and those pursued within the auspices of an existing organization (Weiss, 1981; Hofer & Sandberg, 1987). Based on the organizational structure classification, new undertakings are categorized as either independently organized or pursued within the structures or context of an existing organization.

Based on the previously described hierarchical classification system, we developed a four-cell typology of entrepreneurship, presented in Table 1. This typology allows entrepreneurial

activity to be put in its rightful place, and categorized as either: (1) independent entrepreneurship, (2) grassroots social entrepreneurship, (3) corporate intrapreneurship, or (4) social intrapreneurship. The four categories of entrepreneurial activity are mutually exclusive. For example, activities that fall under the heading of corporate intrapreneurship cannot also be categorized as social entrepreneurship. Each type of value creation is distinct, and any entrepreneurial activity undertaken within an existing organizational structure cannot possibly also be pursued independently of such a structure.

Table 1: Four-Cell Entrepreneurship Typology

	Pursued Independently of An Organizational Context	Pursued Within an Organizational Context
Economic Value	(I) Independent Entrepreneurship	(III) Corporate Intrapreneurship
Social Value	(II) Grassroots Social Entrepreneurship	(IV) Social Intrapreneurship

The first cell of the typology, independent entrepreneurship, can be summarized as the creation of economic value free of any organizational structure or context. Economic value creating activities pursued under the heading of independent entrepreneurship are entrepreneurial activities undertaken by an individual or a group of individuals who have no existing organizational affiliations. Many instances of entrepreneurship portrayed and written about in the popular media are examples of independent entrepreneurship. Fred Smith of FedEx. Steve Jobs and Steve Wozniak of Apple Computers. Anita Roddick of The Body Shop. Bill Gates and Paul Allen of Microsoft. Richard Branson of Virgin Atlantic. These entrepreneurs and their companies have become icons of independent entrepreneurship.

The second cell, grassroots social entrepreneurship, involves the generation of social value initiated and undertaken by individuals or groups of individuals in the absence of a pre-existing organizational context. Examples of grassroots social entrepreneurship include community leaders implementing downtown revitalization initiatives or concerned parents and teachers combining efforts to provide better education through forming charter schools. Grassroots social entrepreneurship is illustrated by Roberts and King (1996) in their work on the implementation of school choice in Minnesota. School choice, a fundamental change in the educational institutions of the state, was essentially developed and introduced through the efforts of six civic leaders outside of government.

Corporate intrapreneurship, as its name suggests, refers to entrepreneurial activity pursued within a corporate environment. It encompasses both corporate venturing, defined as the creation of new businesses within an existing organization, and strategic renewal, defined as the

transformation of an organization through the renewal of the key ideas on which the organization is built. Corporate venturing covers a spectrum of activities, ranging from new enhancements to current products or services to product or service concepts that do not exist today but which could be developed to replace current products or service in current markets or create new markets. Strategic renewal involves the creation of new wealth through new combinations of resources, and includes activities such as refocusing the business to be more competitive, changing marketing or distribution, redirecting product development, reshaping operations, and making acquisitions (Guth & Ginsberg, 1990). 3M is an often cited example of an organization that undertakes corporate entrepreneurship through corporate venturing. The company's many products, such as post-it notes and reflective material are prime examples of new products and services that were developed by the company's innovators.

The term intrapreneurship, which was first introduced by Pinchot (1985), is simply defined as entrepreneurship that takes place within an existing organizational structure. This organizational structure may not necessarily be a corporate structure, it may also include government agencies, universities, research laboratories, and not-for-profit organizations. While intrapreneurship is often thought of from the perspective of private firms, other organizations also pursue entrepreneurial activity with social objectives in mind, and such activity can be categorized as social intrapreneurship. Social intrapreneurship, therefore, encompasses entrepreneurial activity that generates social value undertaken within the confines of an organization, either in the private, public, or nonprofit sectors.

Government and non-profit organizations have discovered and put into practice opportunities to create value by fulfilling unmet societal needs or finding better ways to deliver products or services. This is the heart of social intrapreneurship. One example of social intrapreneurship in government is the privatization or contracting-out of public services such as the provision of social services and waste management. Nonprofit social entrepreneurship often include the pursuit of new ways of achieving the mission and vision related to social outcomes. The classic example of social intrapreneurship, according to Drucker (1985), is the modern American university, which came into being in response to the impending demise of the country's traditional colleges and universities and their inability to attract students.

ANALYSIS OF THE STRENGTH OF THE CLASSIFICATION SYSTEM AND TYPOLOGY

The usefulness of the classification system and typology presented in this paper is evaluated based on two criteria which are explained in the following paragraphs and summarized in Table 2. The criteria are: (1) the classification system incorporates the necessary attributes of a classification system, and (2) the taxa used demonstrates necessary attributes of a classification system taxa.

Table 2: Assessment of the Entrepreneurship Classification System and Typology	
(1) Attributes of the Classification System	
Based on all key characteristics	No. Not all relevant characteristics are included in the classification system.
General purpose	Yes. The classification system applies to all variants of entrepreneurship.
Parsimonious	Yes. Only four non-overlapping taxa are used.
Hierarchical	Yes. The first classification level is the type of value created and the second classification level is the organizational context within which such value creation takes place.
Predictable	Yes. The classification system can be used to predict which category a specific type of entrepreneurship would fall under.
(2) Attributes of the Taxa	
Mutually exclusive	Yes. The taxa do not overlap and any single entrepreneurial event can only be assigned to one taxa.
Homogenous	Yes. Entrepreneurship in each taxa are more similar to each other than they are to those in other taxa.
Collectively exhaustive	Yes. Any form of entrepreneurship must fall in any one of the four categories.
Based on relevant language/names	Yes. Terms used are consistent with existing literature.

A good classification system must incorporate the following necessary attributes: (1) based on all key characteristics of the phenomena being observed, (2) general purpose rather than special purpose (the classification system applies to all types of entities being considered), (3) parsimonious (the classification system contains as few non-overlapping taxa as possible), (4) hierarchical, and (5) highly predictable (Bock, 1973; Chrisman et al., 1986; McKelvey, 1975, 1978).

In addition, the classification system taxa should also demonstrate several necessary attributes. These attributes are: (1) mutual exclusivity (any single event or instance can only fall within one taxa), (2) homogeneity (high internal homogeneity within a taxa, to increase the validity of the generalization made regarding entities in the taxa), (3) collectively exhaustive (the taxa used encompasses all possible variations in new venture creation), and (4) based on relevant language or names (the taxa used must be consistent with that used among researchers and practitioners (Ashlock, 1979; Chrisman et al., 1986; McKelvey, 1975, 1978).

The previously discussed attributes and criteria, based on biological systematics, can be used to evaluate the validity and strength of the classification system and typology developed in this paper. This assessment, summarized in Table 2, indicates that the classification system meets four of the five necessary attributes of a good classification system, and the taxa used fulfills all the necessary attributes if a good classification system taxa. The strength and quality of this typology can be concluded from this assessment.

DRIVING FORCES BEHIND ENTREPRENEURSHIP

Once entrepreneurial activity can be put in its rightful place, another dimension of entrepreneurship can be introduced into this framework to help us better understand entrepreneurship, entrepreneurs, and entrepreneurial activity. A discussion of the driving forces behind entrepreneurship adds depth to this discussion because it sheds light on the drivers that propel entrepreneurial activity undertaken by entrepreneurs in pursuit of change. There are two entrepreneurship drivers. Entrepreneurial activity can be driven by opportunity recognition or by specific needs and necessities of the individual and/or the organization he or she is affiliated with. Opportunity recognition and identification by the entrepreneur is one of the drivers that pushes the entrepreneur to undertake efforts to pursue this opportunity. Because of its orientation, entrepreneurial activity driven by opportunity recognition tends to have high growth potential. For example, opportunity-driven entrepreneurial activity are expected to create twenty percent or more jobs over the next five years (Zacharakis et al., 2002). There are two factors that contribute to the high potential and high growth nature of entrepreneurial activity driven by opportunity recognition. These factors are: (1) technology and (2) consumers.

One of the impetus behind the pursuit ofentrepreneurial activity is the need to commercialize or capitalize on a particular technology. Technology, therefore, is an important factor when it comes to opportunity-driven entrepreneurship. Technology-oriented entrepreneurial activity are often characterized by substantial emphasis on research and development, the employment of people with technical training, and participation in industries with high rates of technical change. They are often positioned in markets or sectors that are rapidly growing and changing. Firms like Dell, Microsoft, and Apple Computer, were all pursued by their founders to take advantage of a specific technology opportunity. In the public sector, government web portals also represent entrepreneurial activities pursued to capitalize on technology. The technology provided government agencies with the opportunity to widen their service audience and/or better serve their constituents, and they undertook entrepreneurial action to take advantage of this opportunity.

Entrepreneurship and entrepreneurial activity may also be consumer-oriented where the entrepreneurial activity is pursued with the goal of fulfilling a perceived market, product, or service void. Entrepreneurial activity is undertaken because the entrepreneur perceives a new idea for a product or service that is not currently being offered or a new way of doing things. The idea for

FedEx, for example, came out of the entrepreneur's realization that consumers wanted and needed overnight package delivery. Universities became entrepreneurial in offering new academic programs because they perceived that there would be student need for specific disciplines. Many universities recognized the importance of entrepreneurship, and perceived that there was a need for entrepreneurship education at the post-secondary level. In response, they undertook entrepreneurial activity to make new and in-demand academic programs available to students.

The second driver of entrepreneurial activity is individual or organizational necessity. Such necessity-driven entrepreneurship, according to Blanchflower and Oswald (1998), is the simplest form of entrepreneurship. Entrepreneurial activity driven by necessity usually achieve modest outcomes, primarily due to the nature of the activity, the objectives of the entrepreneur, and the limited amount of resources devoted to it. These entrepreneurial pursuits often exist to support the entrepreneur and/or the organization, and have less opportunity for significant growth and expansion.

The most obvious example of necessity-driven independent entrepreneurship is self-employment, where the economic value created by the individual is income and financial livelihood. Variations of necessity-driven independent entrepreneurship include (1) income supplementing or part-time entrepreneurship, such as a side consulting business started by an engineer or business professional to supplement basic income; (2) hobby or lifestyle venturing which are started to pay for portions of the expenses of the hobby or activity; and (3) family business or 'mom-and-pop' companies which are intended to generate an income comparable to what could be earned from employment elsewhere.

In the public sector, the push toward government outsourcing or private contracting of social services has been driven by necessity. It has been driven by the government agencies' need to provide more services with less funding, to be more responsive to changing service demands while dealing with smaller budgets. Changes in the provision of social services, for example, have been driven by the combination of the need to serve a changing service audience and increased demand for services, but with smaller budget. Civic leaders in Minnesota were driven by their children's educational needs to create new learning options through school choice.

As the previous sections illustrated, we can use this framework to understand entrepreneurship and put it in its rightful place. Entrepreneurship activity can be categorized using the entrepreneurship typology as either (1) independent entrepreneurship, (2) grassroots social entrepreneurship, (3) corporate intrapreneurship, or (4) social intrapreneurship. Within these categories, entrepreneurship can be further understood by defining the drivers for change behind each type of entrepreneurial activity as opportunity recognition or industrial and organizational necessity.

CONCLUSION

The American landscape, both economically and socially, has undergone a transformation precipitated by entrepreneurship. As the entrepreneurial economy and society continues to speed ahead, policymakers, civic leaders, and industry face significant challenges in further encouraging and supporting entrepreneurial activity. What must be constantly remembered, however, is that entrepreneurship is not limited only to the private sector. Improved quality of life for all walks of society through poverty alleviation, improved access to healthcare, and quality education, for example, require social and civic entrepreneurs to step up to the plate. This paper acknowledges the duality of entrepreneurship, which can, and must, occur in all sectors, public and private, alike.

There is an interesting dichotomy in entrepreneurship. Hart (2003) comments on this duality when he wrote, "although entrepreneurship is a booming area of study in business schools, it has been ignored almost completely by schools of public policy and government" (p. 16). This paper brings together the many forms of entrepreneurship across all sectors – private, public, and nonprofit – based on the common element of value creation driven by change. It is an effort to highlight the bonds shared by all types of entrepreneurial activity, and to provide a starting point from which we can begin to bridge the chasm between the conventional notion of entrepreneurship in the private sector, with social and civic entrepreneurship in the public and nonprofit sectors.

Because of the important role played by private sector entrepreneurship in economic growth and development, policymakers have focused on promoting and supporting entrepreneurship. Community leaders have also turned to encouraging entrepreneurial activity as a means of building or revitalizing their communities. Surprisingly, in their efforts to promote entrepreneurship, policymakers and community leaders have themselves had to be entrepreneurial, They have generated value for society by creating a support structure that eases and facilitates entrepreneurial action. They have created revolving credit or micro credit programs to provide greater access to capital to those unable to obtain capital through conventional channels. They have generated social benefits through the creation of not-for-profit organizations and public-private partnerships dedicated to serving the needs of the community's entrepreneurs. Educational leaders have undertaken new and different entrepreneurship education initiatives to instill in children and youth the entrepreneurial mindset and to provide them with the necessary skills and knowledge to pursue careers in entrepreneurship.

We can no longer afford to ignore entrepreneurship in the public and nonprofit sectors. It is important to realize and to acknowledge that in trying to promote and support entrepreneurial activity, many individuals and organizations have themselves become entrepreneurs and agents of change. The entrepreneurship typology presented in this paper extends our thinking about entrepreneurship beyond conventional wisdom and sheds more light on entrepreneurial activity in the public and nonprofit sectors as a form of entrepreneurship similar to that undertaken in the private sector. Hart (2003) also wrote that "where we can learn enough to take action, we ought to

do so" (p. 16). This paper is a starting point for further learning about entrepreneurship and entrepreneurial activity to acquire sufficient learning to enable and initiate action.

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