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ACADEMY OF ENTREPRENEURSHIP JOURNAL

CONTENTS OF VOLUME 10 NUMBER 1

ACADEMY OF ENTREPRENEURSHIP JOURNAL

CONTENTS OF VOLUME 10 NUMBER 2

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.

As editors, we intend to foster a supportive, mentoring effort on the part of the referees 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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ARTICLES FOR VOLUME 10 NUMBER 1

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A LONGITUDINAL STUDY OF THE ENTREPRENEURIAL INTENTIONS OF UNIVERSITY STUDENTS

Josée Audet, Université Laval

ABSTRACT

This paper presents a longitudinal study of entrepreneurial intentions among university students enrolled in a business administration program. Data was collected twice: first during the last semester in school and then 18 months later, once students had graduated and started to work on a full-time basis. Results confirm that the perceptions of the desirability and feasibility of launching a business significantly explain the formation of an intention to go into business on a long term horizon. However, the model does not hold as well when the time frame is shorter. Indeed, both perceptions fail to explain to a significant degree the intention to go into business. When work satisfaction is added to the model, both this variable and perception of feasibility become significant predictors of short term intentions, perception of desirability remaining non significant. Our results also tend to indicate that entrepreneurial intentions and perceptions vary over time. As the temporal stability of intention is a condition for an intention-based model to accurately predict behavior, the link between entrepreneurial intentions and actual venture creation may prove difficult to establish. Data collected in the following phase of the study should provide more information about the temporal stability of variables.

INTRODUCTION

If there is one question that has not been answered satisfactorily, it is that of whether it is possible to identify the people within a society who will eventually go on to start their own businesses. This question is of considerable interest. Let us imagine for a moment that it is possible to identify the individuals in a given group who have what it takes to succeed in business, or whose profile is consistent with the composite profile of the successful entrepreneur. Financial institutions would find it considerably easier to decide who qualifies for a loan and who does not, simply by administering a test to determine whether the applicant meets the "successful entrepreneur" criteria. Similarly, "future entrepreneurs" could be identified as soon as they entered the educational system, and directed towards an academy of entrepreneurship whose mission would be to provide suitable training, in the same way that the former communist countries used to recruit and train their most promising athletes. Clearly, these examples are completely unrealistic, but they nevertheless illustrate society's insatiable curiosity about new venture creation and its principal actor, the entrepreneur. Indeed, this quest for the "Holy Grail" has fuelled research in the field of entrepreneurship for many years.

Several theoretical approaches have been developed to explain why some people eventually become entrepreneurs. Among these, a relatively new stream of research has emerged, based on entrepreneurial intentions. More specifically, the intention to start a business is thought to be the best predictor of actual venture creation, such intention being formed by perceptions of the desirability and feasibility of going into business. This research perspective looks promising as the few empirical studies that have verified the link between perceptions and intentions have yielded convincing results. However, we do not know yet how entrepreneurial perceptions and intentions evolve over time. As a significant amount of time may elapse between the moment the intention to start a business is formed and the moment the potential entrepreneur initiate activities leading to venture creation, temporal stability is crucial for the model to hold. The objective of this research is to fill this important gap, through a longitudinal study of entrepreneurial intentions and perceptions.

The first part of the paper describes and discusses the theoretical approach selected for this study, namely that intention is a valid predictor of planned behavior such as starting a business. The next section situates the theoretical framework within the research context, i.e. a group of university students on the point of selecting their future careers. Research objectives are then exposed; they are firstly to test whether the students' perceptions of the desirability and feasibility of going into business have an impact on their intention to become entrepreneurs and secondly, to verify if those perceptions and intentions remain stable over time. The paper also describes the research methodology used and presents the results from the first two phases of this longitudinal study, along with some comments. It ends with an overview of the forthcoming phase of the research.

THEORETICAL FOUNDATIONS OF THE ENTREPRENEURIAL INTENTION APPROACH

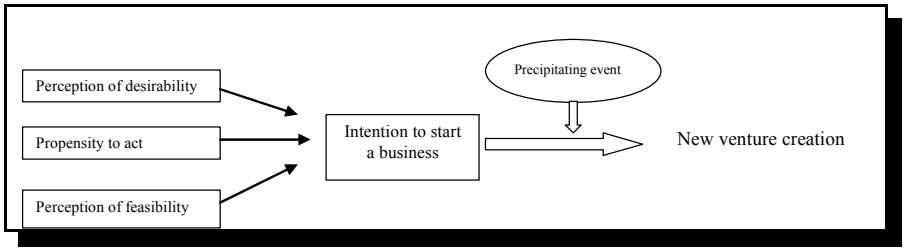
The two main theory-driven models used by researchers having adopted the entrepreneurial intentions approach to study the venture creation phenomenon are those of Ajzen (1991), borrowed from social psychology, and of Shapero and Sokol (1982). This latter was developed specifically for the field of entrepreneurship.

According to Ajzen's Theory of Planned Behavior ("TPB"), any behavior that requires a certain amount of planning, as is unquestionably the act of venture creation, can be predicted by the intention to adopt that behavior (1991). Thus, it would be possible to predict whether or not an individual will eventually launch a business by studying his or her intention to do so. In the TPB, three variables precede the formation of intention, which itself predicts behavior: 1) the subject's attitude toward a given behavior, 2) subjective norms, i.e. the subject's perception of other people's opinions of the proposed behavior, and 3) the subject's perception of his or her control over the behavior.

According to Shapero and Sokol (1982), the decision to change direction significantly in life, for example by launching a business, is precipitated by an event or a break in the established routine. The person's choice will then depend on three elements, namely (1) his or her perception of the desirability of the proposed behavior (a combination of the first two variables in the preceding model), (2) his or her propensity to act (i.e. to act in accordance with his or her intentions), and (3)

his or her perception of the behavior's feasibility, which is similar, conceptually speaking, to the third variable in the preceding model (see Figure 1).

Figure 1
Shapero and Sokol's model of the Entrepreneurial Event (1982)



The beauty of these two theoretical models lies in their simplicity. Both main constructs (perception of desirability and perception of feasibility) are in fact the product of the combined effects of several other variables studied in connection with the venture creation phenomenon. For example, the attraction of the idea of starting a business is probably dependent on the entrepreneurial models an individual has in his or her immediate environment, the prestige and respect ascribed to entrepreneurship as a career choice by the people around the individual, the individual's need for achievement and independence, the opportunities available in the environment, and so on.

But what is a theory worth if it cannot be verified? Generally speaking, the empirical results have been convincing. A meta-analysis of the findings of more than a hundred studies revealed an average correlation of .65 for attitudes and intentions, and .46 for intentions and behavior (Kim & Hunter, 1993). In a similar meta-analysis of the findings of 185 studies carried out up to 1997, TPB accounted for 39% of the variance in intention and for 27% of the variance in behavior (Armitage & Conner, 2001). The behaviors observed for these analyses included contraceptive use, engaging in physical exercise, giving blood, breast-feeding a child, exercising voting rights and so on - in other words, behaviors somewhat removed from the act of launching a business. However, some interesting findings were also obtained for a behavior similar to that of starting a business, namely growing a business (Orser, Hogarth-Scott & Wright, 1998). In this latter study, analysis of data collected from 139 small business owner-managers suggested that the respondents' intention to grow their business was a key factor in actual growth at the end of a four-year period.

The two models described above were also tested on the intention to start a business, and here too the results were significant. Krueger, Reilly and Carsrud tested and compared both models (2000): the model of Shapero and Sokol was found to be slightly superior to that of Azjen (adjusted R_2 of .408 compared with .35) and in both cases the results were statistically significant ($p<.0001$). Reitan (1996) obtained results that were even more convincing with a model combining both the above and including situational variables: this new model explained 63% of the variance in the intention to start a business. However, these models appear to have less explanatory power when short-term intentions are used as the dependent variable: Reitan's model only explained .30 of the

variance in the intention to go into business in the next two years, compared to .22 for Autio, Keeley, Klofsten & Ulfstedt (1997) using a one year intention variable.

It is important to mention that all these studies were aimed at explaining the formation of intention; they did not address the relationship between intention and action. Yet, this is the most important connection. As pointed out by Chrisman, "although the relationship between intentions and subsequent venture creation has considerable face validity and logic, it is not established that intentions always, or even usually, lead to entrepreneurial activity"(1999, p. 47). The few studies where this link was tested produced mixed results. In the five-year period of Katz's study (1989), only 10 out the 33 respondents who had the intention of seeking self-employment at the beginning of the study actually did so at some point. Two other studies showed a higher incidence of business start-ups (Carter, Gartner et Reynolds 1996; Chrisman, 1999). However, in both these cases respondents were in fact nascent entrepreneurs at the beginning of the study, as they had already initiated activities associated with starting a new firm (seek outside assistance, look for facilities, develop a business plan, etc.). This means that they had more than a strong intention to start a venture: they were engaged in the process of making the transition from intention to actual behavior. If it is not possible to verify the existence of a link between the intention to start a business and the realization of that intention, the models described above will remain only partially valid. We tend to think that it may in fact be difficult to establish a statistically significant association between intention and action for two reasons, namely the level of control an individual has over the act of launching a business, and the temporal stability of the intention to launch a business.

As pointed out by Ajzen (1991), if perception of control is to be used to predict behavior, there must be a good fit between that perception and reality. For example, if an individual believes he or she is perfectly capable of going into business and has mastered the process when in fact he or she lacks the knowledge, skills or resources required to succeed, the intention will probably not be realized. This gap between perception and reality may lie in the individual's evaluation of his or her own skills and competencies, or be external to the individual, in an area over which the individual has little control (e.g. access to a bank loan). It may also be a result of the individual's lack of knowledge about what is required (time, effort, resources, etc.) for the behavior to occur. In either cases, such inaccurate perceptions of the feasibility to start a business will weaken the predictive value of an intention-based model.

In the same line of thought, if the intention to launch a business is likely to change over time and as a result of circumstances, an intention formulated at time 1 will not predict action taken at time 2. Indeed, the longer the time between formation of the intention and its expected realization, the greater the chance that some new circumstance will occur to change the initial intention and invalidate the prediction. This is recognized by Ajzen who stated that the temporal stability of intentions is a condition for accurate behavioral prediction (1991). Using the TPB model, Sheeran, Orbell & Trafimow (1999) tested the hypothesis that the temporal stability of intentions moderates the relationship between intentions and behavior. Their results support this hypothesis: almost 20% more variance was accounted for in the behavior of respondents with stable intentions, as opposed to those with unstable intentions. Furthermore, the results indicate that when a person has a positive intention to perform a behavior, the stability of that intention is vital to successful performance. The intention to go into business has never been proven to be stable, indeed, some findings suggest that

it may in fact be unstable (Audet, 2000; Katz, 1989). In Audet's study, students' perceptions of the desirability and feasibility of going into business were measured before and after they had taken a course on entrepreneurship, and some significant differences were found. Given that perceptions form the basis of intentions, it is reasonable to suppose that a change in perception will also trigger a change in intention. In Katz's study, only two of the 33 persons who indicated an intention to seek self-employment in the first year of the study reported the same intention one year later. The only other mention of entrepreneurial intentions came from a single respondent in the fourth year of the study.

RESEARCH QUESTIONS

In light of the foregoing, we felt it was essential to build on current knowledge of the venture creation phenomenon by testing a model based on the intention to go into business. More specifically, answers to the following questions were sought:

- Are entrepreneurial intentions predicted by perceptions of the desirability and feasibility of starting a business ?
- Do these perceptions remain stable over time ?
- Does the intention to start a business remain stable over time?
- What factors influence the temporal stability of the intention to start a business?

The theoretical model selected is that developed by Shapero and Sokol (1982), as reviewed by Krueger, Reilly & Carsrud (2000), with one change, namely the omission of the "propensity to act" variable.

METHODOLOGICAL FRAMEWORK

The project is scheduled to cover a three-year period, since the research questions require longitudinal observation of the variables. The research population is composed of university students from a business administration degree program. The interest of this group lies in the fact that, in terms of skills and knowledge, they appear to be excellent candidates for venture creation. Moreover, when the project started they were near the end of their studies and were expected to have the time and energy available in the near future to plan a business project. As research has shown that the entrepreneurial aspirations of students are highly sensitive to the image of entrepreneurship as a career path projected by the university community (Autio, Keeley, Klofsten & Ulfstedt, 1997), it is important to understand their entrepreneurial path and perhaps help and encourage them in the process.

The research specification provided for an initial data collection process at the beginning of the first year, i.e. during the respondents' last term at university ("Phase I"). The purpose of this process was to measure the variables of the theoretical model at time 1 (t_1) and to test the first part of the model (antecedents of intention). A second data collection process was carried out in the second year, to measure the same variables at t_2, and identify and explain any variations ("Phase II").

The third and last data collection process will take place in the third year, for the same purposes ("Phase III").

Phase I

The sample consisted of 107 third-year undergraduate business students from Concordia University in Montreal, Canada. Data were gathered using a questionnaire distributed in the classroom and over the Internet. To avoid bias in the responses, the students were assured that participation in the study would not affect their grades. Perception variables were measured with a single item on a 1 to 5 scale. The following questions were asked: "How appealing is the idea of one day starting your own business?" (perception of desirability) and "How confident are you in your skills and abilities to start a business?" (perception of feasibility). Intentions were measured as a % probability that the respondent would go into business in the three-year period following graduation (short term) and at some point in their life (long term).

Phase II

The research population for Phase II was the same as for Phase I. However, the occupation of respondents changed: in the 18 months separating Phase I and II, they graduated from university and obtained full-time employment. The sample was much smaller than in the previous phase; of the 107 initial respondents, only 54 were found and agreed to participate to the study. This low retention rate is disappointing but not all that surprising since young adults are known to be very mobile. It is not a major concern as this smaller sample is nevertheless representative of the larger sample, there being no significant difference between these two groups when looking at the means of the four variables measured at t_1. Data was collected through telephone interviews. All four variables were measured at t_2 and in addition open-ended questions were asked to explain differences in answers provided at t_1 and t_2. Finally, respondents were asked about their current work situation to investigate a possible relationship between work satisfaction and short-term intentions to start a business, as will be explained below.

PRESENTATION OF RESULTS AND DISCUSSION

Phase I

When questioned, the respondents estimated the probability of launching their own business in the next three years at 25 %, which is fairly low (see Table 1 next page for descriptive statistics). Indeed, only nine students out of 107 estimated this probability as being 75% or more. Thus, very few students appeared to be considering an entrepreneurial career in the short term. In the longer term, the figures were more encouraging, with an average probability of 61%. Nearly half the students (43%) estimated the probability of starting a business at some time in the future at 75% or more. Thus, many students appear to have a significant interest in the idea of becoming an entrepreneur, but for most it is not something they feel they will do in the immediate future. These

results are in line with those obtained from a sample of students enrolled in another Quebec university (Filion, L'Heureux, Kadji-Youaleu & Bellavance, 2002) and from university students in Russia and Norway (Kolvereid, 1996; Tkachev & Kolvereid, 1999).

Perception of desirability and perception of feasibility variables explained 49% of the variation in the long-term intention to start a business, compared with just 32% in the case of short-term intentions. The predictive power of both variables is fairly high (see Table 2 next page). Not too surprisingly, these results confirm previous findings (Autio, Keeley, Klofsten & Ulfstedt, 1997; Krueger, Reilly & Carsrud, 2000; Reitan, 1996) to the effect that perceptions of the desirability and feasibility of going into business explain the formation of entrepreneurial intention to a significant degree. Perception of desirability appears to be a stronger predictor than perception of feasibility, for both long term and short term intentions, this departing from Krueger's results but confirming Reitan's.

Table 1: Mean scores of perception, intention and work satisfaction variables at t_1 and t_2

Variable	t_1	std. dev.	t_2	std. dev.
	n=107		n= 54	
Perception of desirability (1= low, 5= high)	3.51	1.08	3.56	1.11
Perception of feasibility (1= low, 5= high)	3.39	0.87	3.57	0.92
Intention to start a business <3 yrs (probability as a %)	25.46%	26.76	22.61%	25.40
Intention to start a business >3 yrs (probability as a %)	60.73%	27.63	64.07%	22.51
Work satisfaction (1= low, 5= high)	not available		3.57	0.92

Table 2: Summary of Regression Analyses Results at t_1

Variables	Short-term intention at t_1		Long-term intention at t_1	
	t value	p	t value	p
Perception of desirability	3.28	.0014	6.29	<.0001
Perception of feasibility	2.89	.0047	2.21	.0292
	Adjusted R^2 = .32		Adjusted R^2 = .49	
	p=<.0001		p=<.0001	

The model is more robust when the time frame is longer as opposed to shorter. Autio, Keeley, Klofsten & Ulfstedt argue that adopting a model using a strict short-term intention has both merits and weaknesses. On the positive side, its power to predict venture creation is probably higher than models using long-term intentions. However, the occurrence of a strong intent to go into business within a short time frame is relatively rare. Reitan explained his weaker results with a model using short-term intentions by saying that certain contextual variables excluded from his model (e.g. type of job) probably had a greater impact in the short term than the variables included in the model. For this reason and in light of Phase I results, it was decided to collect data about the work situation of respondents in Phase II; more precisely, the respondents' level of satisfaction with their current jobs was measured on a 1 to 5 scale.

Phase II

A regression analysis confirmed the Phase I results for long-term intentions (see Table 3 below) but not for short-term intentions. Indeed, the two perception variables failed to contribute significantly in the prediction of short-term intentions.

Table 3: Summary of Regression Analyses Results at t_2

Variables	Short-term intention at t_2		Long-term intention at t_2	
	t value	p	t value	p
Perception of desirability	1.68	.0985	4.04	.0002
Perception of feasibility	1.44	.1560	2.89	.0056
	Adjusted R^2 = .13		Adjusted R^2 = .47	
	p=.01		p=<.0001	

In an attempt to verify the explanation set forward by Reitan (1996), the variable "work satisfaction" was added to the regression model (see Table 4 below). This yielded disturbing results: both perception of feasibility and work satisfaction proved statistically significant in explaining short-term intentions, but not perception of desirability. As might have been expected, correlation between work satisfaction and entrepreneurial intentions was negative (r^2 of -.28), suggesting that some respondents reconsidered their short-term intention to go into business because they enjoyed their current jobs and were satisfied with their employment situation. Interestingly, work satisfaction had no impact on the intention to start a business in the distant future: when this variable was added to the model, its p value was non significant at .35. We are thus lead to believe that respondents' level of satisfaction with their current jobs explains the probability that they will start a business in the near future better than their perception of the desirability of going into business.

Table 4: Summary of Regression Analyses Results at t_2 with work satisfaction added to the model				
Variables	Short-term intention at t_2		Long-term intention at t_2	
	t value	p	t value	p
Perception of desirability	1.16	.2541	3.69	.0006
Perception of feasibility	2.39	.0212	3.32	.0018
Work satisfaction	-2.52	.0155	-0.94	.3541
	Adjusted R^2 = .23		Adjusted R^2 = .48	
	p=.0021		p=<.0001	

There may be an alternate explanation for the fact that perceptions of the desirability and feasibility of going into business fail to explain the intention to start a business in the near future. Sutton argues that one explanation for poor predictability by intention-based models is violation of the principle of compatibility (1998). This principle states that to maximize predictive power both the predictor and the criterion should be measured at the same level of specificity in terms of action, target, time and context. This principle is violated when measures of perceptions and intentions are not set in the same time frame. For example, in this study respondents were asked about their perception of the feasibility and desirability of starting their own business at some point in their life to predict their intention to go into business in the three-year period following their graduation. Results would have probably been different, and more convincing, if respondents had been asked about their perceptions toward starting a business in the next three years. First, their level of work satisfaction would have influenced their perception of the desirability of starting a business in the short term and made this variable more significant in explaining short-term intentions. Second, their perception of the feasibility of starting a business in the near future would have been a more accurate predictor of short-term intentions. To verify this hypothesis, perceptions of desirability and feasibility will be operationalized within the same time frame as intentions in Phase III of the research.

Descriptive statistics for Phase II variables do not appear to differ much from those at t_1 for the 54 respondents who participated to both phases of data collection (see Table 1). A t-test for equality of means and a paired samples test revealed no significant difference between t_1 and t_2 means for all four variables. For each of the two perception variables, approximately half the respondents provided the same answer at t_2 as at t_1 and the change in the probability of starting a business was greater than 20% for one third of the sample. Correlation coefficients for measures of the same variable at t_1 and t_2 were relatively high for perception of desirability (r^2=.63), perception of feasibility (r^2=.55) and long term intention (r^2=.57) and slightly lower for short term intention (r^2=.35), suggesting less temporal stability.

When looking at differences in frequencies between t_1 and t_2, changes in perceptions were found across all score categories (from 1 to 5). The trend appears to be that the perceptions of respondents in the lower categories at t_1 shifted to higher categories at t_2. This indicates that, at t_2,

more respondents felt they had the skills and abilities to start a business and regarded it as a desirable career option. However, it must be borne in mind that this trend does not show when we look at the differences in means. Such apparent changes in perceptions were associated with changes in both short and long-term intentions of starting a business at t_2. Fewer respondents rated the probability of starting a business in the short term at 50% and above, but more expressed such an intention in the long run.

According to theory, respondents with a strong positive orientation qualify as "potential entrepreneurs" in the sense that, if the theory holds, they are the respondents with the highest probability of starting a business. These would-be entrepreneurs are also the ones that entrepreneurship scholars have been trying to identify a priori for years. If one takes a closer look at the answers provided at t_1 by students with a supposedly high entrepreneurial potential (% probability of starting a business >or = 75%), it can be seen that their short-term intentions changed drastically. Indeed, at t_2 only one respondent out of four still intended to start a business within the three-year period following graduation (see Table 5). The other two respondents who stated a high short-term probability of starting a business at t_2 had indicated probabilities of 65% and 5% (!) at t_1. On a long term horizon, intentions are slightly more stable. Of the 21 respondents who, at t_1, had strong intentions of starting a business at some point in their life, only six had changed their minds to a significant degree at t_2 (>25% change in probability). On the other hand, among those who did not have a strong intent at t_1 but had one at t_2, 5 out of 6 respondents expressed a change in intention greater than 25%. In fact, the average increase in the probability of starting a business between t_1 and t_2 for these respondents was 37.5%, which is a change of rather large magnitude. Furthermore, two of these six respondents had expressed a very low probability of starting a business at t_1 (respectively 5% and 20%). This means that these "potential entrepreneurs" at t_2 would have never been identified as such at t_1 if an intention-based model had been used. There is thus a risk of missing real aspiring entrepreneurs when using such a model. Katz goes as far as to say that "studying those who intend to enter business ownership would result in missing over 98% of those who become business owners." (1989, p.530)

Table 5: Variation in probabilities of starting a business among respondents with a strong short term intent at t_1 or t_2

	Probability at t_1	Probability at t_2	Change in probability
Respondents with a strong intent at t_1 (n=4)	75%	25%	(50%)
	75%	20%	(55%)
	99%	100%	1%
	100%	0	100%
Respondents with a strong intent at t_2 only (n=2)	5%	95%	90%
	65%	90%	25%

In light of the above, it is difficult to evaluate with much certainty the temporal stability of the intention to start a business and of the perceptions that form such intention. What is the range within which an intention can change over time without being labeled "unstable" ? Is a 10% or 20% change in the probability of starting a business indicative of temporal unstability ? Would a change from a probability of going into business of 85% to 75% affect the likelihood that the behavior will occur as much as a change from 75 to 85% ? The answer to these questions is highly consequential as respondents with stable strong positive intentions are considerably more likely to perform the predicted behavior than those with positive but unstable intentions (Sheeran, Orbell & Trafimow, 1999). There is an urgent need to clarify the notion of temporal stability as applied to the intention of starting a business.

Identifying the factors and events that are most likely to impact on the intentions of respondents may help us understand how these intentions change over time. Among the reasons given by respondents to explain changes in their intentions or perceptions were:

Positive change

- Being more mature, having more work experience, this having an effect on their self-confidence;
- Money: some realized that their earning potential was limited when working as an employee and they want more, much more.
- Freedom: some resent the constraints of the workplace (rules, fixed schedule, being supervised, fixed salary, etc.);
- Opportunity recognition: being active in the workplace puts respondents in a better position to identify and recognize business opportunities than when they were students;
- Being your own boss: some long for the satisfaction of working for themselves, of having something left for themselves at the end of the day.

Negative change

- Reality shock: some realized that they knew far less than they thought and that the process of starting a business was not as easy as they had imagined (this is a typical case of mismatch between perceptions of feasibility and reality);
- Corporate orientation: some realized they enjoy employee status and the corporate environment (stability, less risk, good pay, etc).

One fact worth emphasizing is that the respondents had gone through a very major change in their lives between t_1 and t_2: they went from being students to having their first full-time job in their field of expertise. As a result, their income level changed as did their social environment, their status in society, their place of residence (for most), their legal status (for some), and so on. Clearly, changes of this magnitude cannot be expected to occur again in the next several years. It will thus

be extremely interesting to see if their intentions continue to change from t_2 to t_3, despite the fact that they have entered a period of relative stability in their life paths.

LOOKING TO THE FUTURE

Data gathered in the first two phases of the project confirmed results from previous studies: perceptions of the desirability and feasibility of starting a business significantly explain the intention to go into business at some point in life. However, the model does not hold as well when the time frame is shorter. Indeed, at t_2 both perceptions failed to explain to a significant degree the intention to go into business in the next three years. When work satisfaction is added to the regression model, both this variable and perception of feasibility become significant predictors of short term intentions, perception of desirability remaining non significant. The major contribution of this research so far is to provide longitudinal measures of the variables forming an intention-based model of venture creation. Our results tend to indicate that entrepreneurial intentions and perceptions vary over time. As the temporal stability of intentions is a condition for an intention-based model to accurately predict behavior, the link between entrepreneurial intentions and actual venture creation may prove difficult to establish. As pointed out by Niittykangas and Laukkanen , expressed readiness for an entrepreneurial career can probably "serve as a useful indicator and a starting point for officials making decisions about whether or not to proceed further with a prospective self-employer. (…) Importantly, entrepreneurial potential cannot be assumed to be confined to such persons only"(1998, page 61). Data collected in future phases of the project should shed more light on the temporal stability of intentions and on the process by which intentions are transformed into action.

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THE IMPACT OF NEWNESS AND NOVELTY ON THE FIT BETWEEN THE NEW VENTURE AND THE TOP MANAGEMENT TEAM

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ABSTRACT

This article reviews and applies lessons from the strategic management literature on the relationship between the level of innovation of a new venture and the size, diversity, and experience of its top management team. It is suggested that the greater the novelty of the venture, the smaller and more focused the management team should be. The initial thrust of the enterprise must be to eliminate ambiguity by developing causal understanding amongst all the relevant stakeholders. Once ambiguity has been resolved, the team can expand to address issues of uncertainty and other liabilities of newness.

To illustrate these concepts and drive home the point, the cases of two new ventures in the environmental remediation business are examined. Both were well funded and represented great potential. Both were taken to market by essentially the same top management team. However, one was a tremendous success; the other was a dismal failure.

INTRODUCTION

There is little question that entrepreneurs starting new ventures must build a top management team (TMT) that is knowledgeable in all of the key strategic, technical, and functional areas of their business to be successful. However, the question of when a new organization should add the missing pieces of their TMT puzzle, and whether these missing pieces should be added internally or outsourced, does not lend itself to easy answers. While it may seem logical that the faster a firm fills out its TMT the better, based upon the level of innovativeness of the new venture, this may be the worst thing that the organization can do.

In determining the likelihood of success of a new venture, few things matter more than the top management team. Accordingly, venture capitalists often look to the characteristics of the team and its record when making decisions about who gets funding and who does not. The top management team is important because it is this group of individuals who must usher the venture through the difficult liabilities of newness (Hay, Verdin & Willimason, 1993; Singh, Tucker & House, 1986; Stinchcombe 1965). Indeed, teams that have been successful in managing new ventures in the past are often considered safe bets to do so again in the future.

While acknowledging the importance of the team and the team's experience, this article suggests that venture performance also results from the fit between the team and the new venture itself. Research from the field of strategic management clearly shows that not all teams are equally

suited to all tasks. As such, a team that performs well in one venture may not do as well in another. Later in this article, this point will be illustrated with cases drawn from two new ventures, each of which was managed by essentially the same top management team, yet managed to very different outcomes. One was a great success; the other was a dismal failure. Therefore, while the characteristics and experiences of the top management team are clearly important, those characteristics and experiences are by themselves less important than the fit between the team and the venture.

Specifically, the "fit" is between the size, diversity, and experience of the team and the innovativeness of the venture. Research in strategic management has shown that fit between strategy and implementation is key to success (McGrath, Tsai, Venkataraman & MacMillan, 1996). In new ventures, the management team is responsible for implementing strategy. As such, the fit of the team to the strategy is especially important. The degree of innovation appears to dictate many of the tasks of the top management team. In part then, venture performance reflects the fit between the team and the innovativeness of the new venture.

This article will examine how quickly a TMT should fill all of its functional positions given the level of innovation of the new venture. It is suggested that the greater the level of innovation in the new venture, the more homogeneous the TMT must be in knowledge, values, and beliefs. The implication is that the more innovative a new venture, the slower the entrepreneur should fill all of the functional positions of the TMT in order to foster team and stakeholder understanding and preserve company resources.

NEW VENTURES AND INNOVATION

Innovation has been defined as the introduction of something new, representing change in existing circumstances (McGrath, Tsai et al., 1996). Accordingly, all "new" ventures are by definition innovative. While this apparent newness is seen easily in the case of firms like Netscape or Federal Express, both of which created whole new industries, it is not nearly as apparent in cases like Wendy's Old Fashioned Hamburgers or Kinkos, which merely modified and extended existing business models and practices. Reflecting the dissimilarity of these cases, researchers have concluded that innovation can take different forms. Some innovations are altogether new and different and so constitute true revolutions. These do more than merely change the rules of the game, they change the game itself. At the same time, there are also innovations that build on existing knowledge and awareness. These are more evolutionary than revolutionary and merely redefine the nature of existing competition (D'Aveni, 1995; Dewar & Dutton, 1986; Tushman & Anderson, 1986).

Each type of innovation can be placed along a continuum based upon its novelty. The more new products and services differ from what competitors offer and from what customers expect, the greater their innovativeness. Thus, new ventures that create whole new industries by doing something altogether new and different or by delivering an existing product or service in an altogether new and different fashion are highly innovative. At the same time, ventures that simply fill a gap in existing markets through marginal improvements in known products or by moving into new areas of unsatisfied demand are less innovative. The distinction is important because variations

in innovativeness affect the level and nature of the knowledge demands facing the venture management team.

To be successful, new ventures must develop a sustainable competitive advantage. This concept implies that 1) customers must value the new product or services the new venture is offering and 2) competitors must not be able to quickly or easily imitate or appropriate what the firm is doing (Porter, 1985). With respect to the first concept, new ventures create value for customers either by reducing what a customer pays for a product or by providing them greater utility, product benefits or features. Hence, new ventures create value for customers either through process innovation, they make it less expensively, or through product innovation, customers pick the new product over competitors for reasons other than price, such as features or benefits.

Thus, innovations can be divided into two primary categories, process innovation and product innovation. Process innovations result in producing a product or service in a new way. The aim of process innovation is to improve efficiency or quality. If a new venture seeks to compete in a market solely on the basis of process innovations, customers will already understand the use and utility of the products and must only be convinced that the new venture's products are less expensive. Cost to the customer can be measured either by purchase price or by the sum of the purchase price plus other expected savings associated with the purchase. An example of these additional savings would be lower after-purchase ownership costs such as maintenance due to the higher quality of the product.

In counterpoint to process innovations, product innovations require that the customer perceive a need for the new features or benefits of the new product. This requires that customers first understand these features and benefits and second, find value therein. With incremental changes to existing products, customer understanding can be readily achieved. However, with significant innovations, customers may need extensive education before accepting the new product.

Both process and product innovations require knowledge transfers both internal and external to the new venture. New ventures may innovate along one or both dimensions simultaneously. New processes may be applied to either new or existing products and new products can be produced by either new or existing processes. Therefore, the overall level of innovation is a function of individual levels of process and product innovation.

How people perceive innovation is based upon their level of understanding of what is new. The less they understand, the more novel the innovation is to them. The result is that anyone that deals with the new venture, such as suppliers, distributors, customers, employees, regulators, etc. must learn what is different about the new venture and understand how it impacts them. The type and level of novelty of the innovation will dictate how much effort it will take to "educate" these stakeholders.

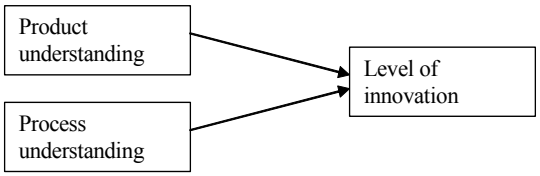
For example, consider the launch of a venture such as Wendy's Old Fashioned Hamburgers. In a case such as this, the need for education was limited. Most of the stakeholders understood the products, the mode of delivery, the nature of the operation, and the range of performance. The process of franchising was understood and accessible. Specifications for inputs were available and objective. Operating parameters were tested and established. Even though new employees required training, they were likely to have been familiar with the nature of their jobs from prior contact with the business as a customer. In short, despite the fact that the venture itself was new, the liabilities

of that newness were limited to internal coordination and efficiency challenges, which were easily overcome with information readily at hand.

Conversely, in a highly novel venture like Netscape, stakeholders had few experiences with which to understand the new business. Managers could not be certain what it would take to establish the business because there was no clear and existing market for the product. Potential customers may or may not have understood the benefits of a web browser but in any case would have had no experience with the technology nor would they have had reason to trust this particular firm. Further, management had few precedents to follow in running the business and so had to create new operating and measurement systems from scratch. In addition, management had to do all of this while "on the job" of building and running the new company. Thus, this venture faced significant liabilities attributable not just to newness but also to "differentness." As research by Kimberly (1979) shows, while it is difficult to be new, it is especially difficult to be new and different.

Based upon the above discussion, the level of innovation of a new venture can be represented by two distinct dimensions, product understanding and process understanding. New ventures can be either high or low on either dimension. As a group, new ventures that are high on both dimensions face the greatest challenges in implementing their plans. They will reap the greatest rewards but will also face the greatest chance of failure. New ventures that are low on both dimensions will reap lower rewards but will have a lower chance of failure. Figure 1 depicts this relationship.

FIGURE 1



TOP MANAGEMENT TEAM HOMOGENEITY AND SHARED KNOWLEDGE

The top management team of any venture is comprised of those individuals who are responsible for making strategic and policy decisions that determine the success or failure of the organization. As such, they are ultimately responsible for the performance of the organization. For new ventures, the TMT may be limited to the founding entrepreneur or may comprise a limited group of senior executives. To be successful, new venture managers must have a shared vision for how they will guide the organization in its internal development as well as its interactions with the external environment. In most instances, this involves "on-the-job" training for their new roles while simultaneously building a new organization. The new venture managers must establish relationships both internally with employees and externally with customers, suppliers, distributors, investors, creditors, advisors and other stakeholders. Securing the cooperation of all of these constituencies requires establishing personal and organizational legitimacy, which is primarily a function of learning.

As a group, the TMT must have a wide range of knowledge, much of which is not shared. The greater the shared knowledge of the TMT, the greater the homogeneity of the team. The greater the breadth and divergence of knowledge of the TMT (such as non-overlapping functional or industry experience), the greater the team heterogeneity. TMT heterogeneity includes personality factors such as values, beliefs, and cognitions and elements of executive experience such as age, education, functional background, and tenure working together.

Each member of the TMT brings with them a unique set of knowledge resulting from their past education and experience. This knowledge is based upon prior context-specific experience and is stored in the form of schema (Fiske, 1980; Levitt & March, 1988). When an individual encounters a context-specific event in the present that is similar to a prior experience, they are quickly able to activate schemas that dictate courses of action. In essence, the actions they will take are programmed responses based upon prior experience (Abbot & Black, 1986). What differentiates an expert from a novice is the possession of schema related to the context of interest. Experts, given a little bit of situational information, can quickly make inferences about what may happen next in the circumstances and can react accordingly (Abelson & Black, 1986; Shank & Abelson, 1977). However, prior experience can lead to improper actions when schemas are applied to inappropriate context (Chandler, 1996; Reed & DeFillipi, 1990).

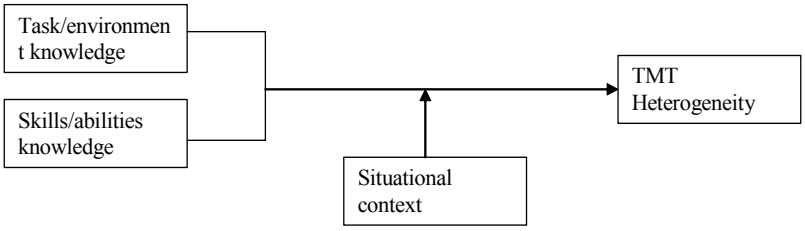
The specific knowledge that has been suggested as significant in prior literature is prior managerial experience, prior startup experience, prior management team experience, knowledge, skills and abilities, and prior experience in the line of business (Chandler, 1996; Chandler & Hanks, 1994; Dutton & Jackson, 1987; Herron, 1994; Hoad & Rosko, 1964; Lant & Mezias, 1990; Lumpkin & Dess, 1996; MacMillan, 1986; MacMillan, Seigel et al., 1985; McGee, Dowling et al., 1995; Mitchell, 1994; Roure & Keeley, 1990; Roure & Maidique, 1986; Stuart & Abetti, 1990). These specific areas of knowledge can be classified into two categories, skills/abilities and task/environment (Chandler, 1996; Herron, 1994). Skills/abilities include managerial, technical, functional area, opportunity identification, and creativity knowledge. Task/environment knowledge refers to knowledge gained from prior business experience. This includes knowledge of customers, suppliers, technology, competitors, products/services, and political, legal, and social trends.

In the case of new ventures, the less novel the venture, the more prior experience will work in favor of the new firm as prior schema can be used with little or no modification. However, in the case of highly novel new ventures, prior experience may not be appropriate and existing schema in TMT members must be ignored in favor of new realities. This requires first convincing the new TMT members that they are operating in uncharted territory and then training them how to operate in the new environment. In other words, it can be difficult to teach old dogs new tricks. How well suited the TMT is to learning what is required for the new environment will directly impact the success of the new venture. Accordingly, there must be a fit between the requirements of the new venture strategy and the TMT (Chaganti & Sambharya, 1987; Gupta, 1984; McGrath, Tsai et al., 1996).

Thus, knowledge can be a two-edged sword for new ventures. Too little knowledge in the TMT will mean significant investment in catching up to competitors or in simply understanding the concept of the new venture. Too much knowledge, in particular in skills/abilities area, can lead to the use of inappropriate schema in the context of the current venture. The more aligned and shared

knowledge is between members of the TMT, the greater the homogeneity of the TMT. Figure 2 depicts this relationship.

FIGURE 2



NEWNESS, INNOVATION AND THE NEED FOR BEHAVIORAL INTEGRATION

The central premise of this article is that the higher the level of innovation, the more homogeneous a new venture's TMT should be in the early stages of the enterprise. Information processing and communication differences imposed by the different levels of innovation are at the heart of this issue. Hambrick (1994) defined the "degree to which [a] group engages in mutual and collective interaction" as "behavioral integration." The more novel the new venture, the greater the need for TMT behavioral integration in either developing the new products and/or implementing new processes.

Research on top management teams has shown that many top management teams do not really function as "teams" in the traditional sense of the word (Hambrick, 1994). Indeed, some are little more than collections of semi-autonomous individuals, who perform separate and specialized tasks with little or no direct involvement from or interaction with their fellow team members. While sharing ultimate responsibility for the firm, these individuals share little responsibility for their individual jobs and interact little in the performance of them. In the language of early organization theorists, these teams operate with low interdependence. At the same time, other teams are truly interactive and mutually responsible for the performance of their jobs. These teams are composed of individuals who work collectively with their fellow team members and share responsibility for the firm itself as well as for a range of its different tasks. These teams represent high interdependence.

In very novel situations, like those commonly found in highly innovative ventures, managers do not possess appropriate schema for the new circumstances since there is no past precedent upon which to draw. Accordingly, managers have two choices: 1) apply schema from past experience that are in some way related or 2) develop a new approach to the situation. In novel circumstances, people tend to rely on what they know best. However, by definition, innovation requires obtaining new information. Managers are forced to develop new patterns and approaches to their situation, which means they must develop and communicate collectively a common perspective and shared understanding of the venture's products, processes, systems, and public persona. Research shows that shared and collective effort, as opposed to segmented and individual effort, is necessary to accomplish such tasks (Hoffman & Maier, 1961; Hoffman, Harburg et al., 1962). Moreover,

research also shows that prior experience can hinder the development of new perspectives and understandings (Chandler, 1996). Therefore, it is incumbent upon the TMT to jointly develop a common perspective and a shared understanding of the new venture's products, processes, and the way it should be managed.

Conversely, in less novel situations, like those commonly found in less innovative ventures or when process innovation is restricted to a limited functional area of the new venture, behavioral integration becomes less important since only a subset of the managers are involved in the novel aspects of the new venture. There is greater precedent upon which to draw and available schema are much more appropriate. In these cases, environmental scanning and boundary spanning can be used to obtain necessary new information. Such tasks do not require collective effort and can therefore be effectively segmented into individual initiatives (Eisenhardt & Schoonhoven, 1990). Moreover, research shows that prior experience can be beneficial and enables quick and efficient understanding of the important issues and consensus on how to approach them. In fact, over time, managers within a given field will develop "industry recipes" which reflect a distillation of the best practices within the industry. At the extreme, the development of such heuristics and norms may allow managers to move from firm-to-firm or team-to-team without noticeable loss in their effectiveness as a "team" member.

Therefore, in highly innovative new ventures, TMT members must have high levels of behavioral integration to create shared understanding where none existed before. In less innovative new ventures, TMT members will spend more time scanning the environment, gathering information from key stakeholders, and focusing on the threat from competitors.

The larger the TMT, the more difficult behavioral integration becomes. New ventures tend to have very limited slack resources, principal among them TMT member time. In the early stages of a new venture, managers must not only supervise the day-to-day operations of their functional areas, but they must also build the organization itself. Without standardized operating procedures to rely upon and confronted with the demands of building a cohesive organization from scratch, new venture managers face tremendous demands for their time. As a result, getting a large number of TMT members together for frequent meetings and working sessions becomes an exercise in herding cats. Conversely, large TMT's are well suited for gathering large amounts of information from the external environment, as is required by less innovative new ventures.

It appears clear then, that the skills and abilities needed to manage highly innovative ventures are different from those needed to manage less innovative ventures. In the first case, the team must be able to create a new model to resolve its ambiguity before it can move forward with the other tasks of running the new firm and herein lies the additional difficulty of being both new and different. On the other hand, where there is little ambiguity the team can move quickly to gather and apply information to address uncertainty. These differences in the requisite tasks necessitate different sorts of teams with different sorts of skills and abilities to match them.

DOING FIRST THINGS FIRST

Given the importance of the management team to venture success, many entrepreneurs, venture capitalists, and new venture managers believe their success depends upon their ability to

quickly assemble a team with a full range of functional talents and experience. However, this view may not be fully accurate. Managing a new venture can be seen as the implementation of a strategy. Strategy implementation is enhanced when the skills and abilities of the manager are matched to the requirements of the strategy (Szilagyi & Schweiger, 1984). An entrepreneur starts a venture with the purpose of pursuing a specific opportunity. The management team is then responsible for going to market with that opportunity and commercializing it successfully. Thus, the development of the management team should be seen as a critical first step in the process of implementation.

First and foremost in the implementation process is the development of what has been called "causal understanding" (McGrath, Tsai, et al., 1996). Causal understanding relates to consensus on issues such as the venture's competencies and the use of those competencies in the creation of value. What is the product and what value will it create for the customer? Who are the customers and how will they be identified and sold? What sort of operating model will the venture adopt and how will it progress towards its goals? These sorts of basic questions have to be resolved before the venture can effectively go to market and begin to interface with its constituents.

In less innovative ventures, a great deal of causal understanding occurs naturally as there is a high level of familiarity with the business type. As a consequence, a larger and more diverse team, with a deep reservoir of prior experience in new venture management, can be quickly built to facilitate rapid expansion and market acceptance. Of course some liabilities will remain, as there are bound to be uncertainties associated with managing the new firm. However, because of the low novelty setting, information about these uncertainties will be available and accessible to an experienced team proficient in environmental scanning and boundary spanning. In addition, is the presence of appropriate precedent, allowing the team to draw from its reservoir of experience and employ existing schema to manage and coordinate its work. This enables an efficient process with only minimal interdependence. Thus, a large, diverse, and experienced team should add the greatest value to the implementation of less innovative new ventures. This is not to imply that all uncertainty can be eliminated, just that the diverse team can gather a greater amount of pertinent information upon which to make decisions.

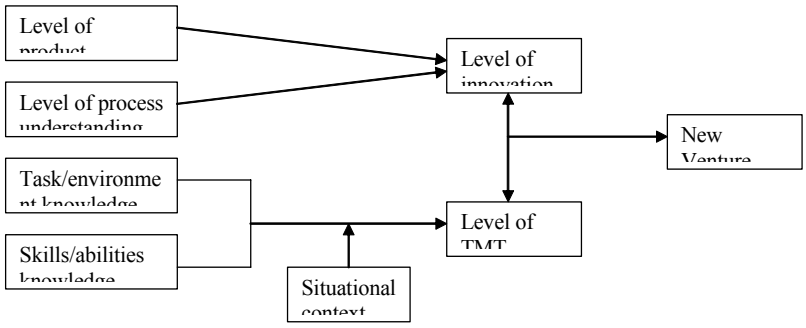
In highly innovative ventures, however, the lack of causal understanding means that a smaller and less diverse team may actually be better suited to the task. What is needed in truly novel situations is not the application of existing knowledge to the problem, but the creation of new knowledge through intense processing and exchange of ideas. Thus, in these situations, the ability to frequently exchange rich information and to closely coordinate action is at a premium. Moreover, it is important that the teams not rely too heavily on prior experience; if it were to do so, it might apply inappropriate precedent and schema to the novel situation. Innovativeness necessitates the development and sharing of new perspectives, which, heretofore, did not exist. Management teams without the baggage of previously confirmed "solutions" are more likely to struggle with and talk over possible new ways of contending with the problems at hand. They are also likely to be better at generating new knowledge. Indeed, some researchers have begun to call these unique initial perspectives "learning advantages of newness" (Autio, Sapienza, & Almeida, 2000).

The above discussion suggests that the large, diverse, and experienced team that would be well fit for a less innovative venture, might be altogether unfit to manage a highly innovative one. Such a pre-existing and "complete" team, because of its prior experiences, might have difficulty

tolerating ambiguity, and so apply schema and precedent that are inappropriate. Because of its diversity, such a team might allow or even encourage low levels of interdependence among its members and focus instead on efficiency and the segmentation of tasks along the lines of the team's existing skill set. Further, because of its size, such a team might find meetings cumbersome and difficult to coordinate and so further reduce interdependence and face-to-face communication (Amason & Sapienza, 1997). Taking such actions would be detrimental to the early stages of implementing a highly innovative strategy.

Figure 3 depicts the integration of these concepts. If the TMT does not have causal understanding, it is incumbent upon the entrepreneur to educate the other members of the team. The more novel the idea, the more difficult the task. The more difficult the task, the more resources must be consumed in the effort and the longer the time before the new venture will be ready to go to market. The longer the time-to-market, the less critical certain functional areas become, such as sales (if you don't have a product to sell, you don't need sales staff). Thus, it is clear that the more innovative the new venture, the more homogeneous the initial TMT must be. This suggests that in the early stages of a new innovative venture, the entrepreneur should focus on hiring and training only those members of the TMT that will be necessary to move the venture to the next level.

FIGURE 3



THE CASE OF TWO NEW VENTURES

As mentioned previously, the propositions concerning the interaction between TMT heterogeneity and the level of new venture innovation reflect the findings of research in the strategic management literature. The above points can be illustrated in the form of two brief cases. These stories are taken from the experiences of the author, who is a seasoned manager with significant new venture experience. The cases are the stories of two new ventures in the environmental remediation industry. What makes the stories especially compelling is that both ventures were taken to market by the same top management team, but with very different results.

The first venture was a specialized, but less innovative, hazardous waste cleanup venture that was extremely successful. The second involved a highly novel biotech environmental cleanup venture that failed. Both were managed by what was essentially the same team, with the same chief

executive officer, chief operating officer, chief financial officer, and vice president of engineering and both were well funded at the time of start up. However, whereas the first venture was able to quickly establish causal understanding before consuming its resources, the second required a substantially longer time to build causal understanding and, as a result, consumed its resources prior to commercial success.

The first case involves a company that we will call Greenway. Greenway was formed in late 1982 as a subsidiary of a large engineering firm to pursue hazardous waste cleanup contracts. At the time, there was limited but intense competition in the industry from larger and more established firms, as well from smaller regional firms. Greenway's strategy was to enter strategic partnerships with the smaller cleanup firms in the Southeastern United States to compete with the large firms for Environmental Protection Agency (EPA) contracts. Towards this end, Greenway initially employed a CEO and a toxicologist as its only employees in putting together its first bids. Until an initial contract was obtained, no other staff was hired.

The firm was awarded its first multimillion-dollar contract by the middle of 1983 and so began to hire staff. An operations manager, field employees, and engineers were added as new contracts were obtained. The company also hired marketing, technical, and administrative managers to complete its team soon after the initial contract was awarded. Greenway's strategy was to be a primary contractor and to subcontract any specialized services that may have been required such as trucking, biological treatments, chemical fixation, and disposal. The only field staff that the company employed were supervisors and semi-skilled laborers.

Greenway only pursued contracts where the method of cleanup was well understood by the clients and regulatory authorities. As such, while the strategy was highly focused and specialized, neither the service nor its application were particularly novel. The addition of the marketing staff led quickly to obtaining commercial work including long-term contracts with the largest polluters and, after three years, the company had earned an outstanding reputation.

As the company was growing quickly, having a well-qualified chief financial officer allowed Greenway to adopt new financial and reporting systems to keep pace with the rapidly expanding administrative and accounting requirements associated with large government contracts. Overall, since there were no impediments to growth except establishing legitimacy and being competitive on price, having an experienced and functionally specialized management team was critical to the company's success. With such a team in place, Greenway grew in a period of 5 years from two to three hundred and fifty employees with annual revenues approaching $25,000,000. At that point, the company was sold for one of the highest prices ever paid for a hazardous waste cleanup contractor at the time.

This case provides a good example of a less innovative startup and of the implementation requirements placed on its top management team. Greenway was well funded initially yet lacked the reputation and systems required to be successful. The competitive nature of the industry required that both a high level of reliability and a low cost be achieved. To be successful, Greenway needed to scan the environment for the most reliable subcontractors, the most prolific polluters, the contracting requirements of the EPA, as well as information about regulation and oversight. This information needed to be gathered quickly and internalized if the firm was to succeed, which meant

that the management team needed to be relatively complete, with individuals who could span these environmental boundaries and fill these gaps in the venture's knowledge.

Towards this end, the team was assembled to include a variety of functional specialists, with specific knowledge and experience in the different functions the firm would perform. The marketing manager had experience and skills that allowed him to quickly identify opportunities and bid work. The engineering manager had the knowledge and experience to identify and work with subcontractors to insure efficient and well-done projects. The CFO had knowledge and experience with government contracts, payment practices, documentation requirements, and control systems that allowed him to manage the growing workload. Finally, the CEO had sufficient knowledge and experience to structure this group of managers in a loose fashion while motivating them to be proactive and aggressive. This arrangement, when matched with the high level of business familiarity, enabled the members of the team to work independently, yet towards a common goal. Everyone knew and understood the strategy and their role within it. Thus, having in place this complete, functionally diverse, and experienced team, with its high level of causal understanding, enabled a quick and effective start up of what ultimately became a very successful venture.

The second case involves a company that we will call Bioclean. The story of Bioclean is quite different from that of Greenway and provides a clear example of the pitfalls of misfit between the strategy and the top management team. In 1989, a venture capital firm provided seed funding to a university professor of microbiology for the development of a biological treatment using naturally occurring organisms for certain highly recalcitrant carbon-based compounds such as creosote (a wood preservative) and the wastes from the production of gas from coal. The purpose of the seed funding was to provide the matching funds for a Cooperative Research and Development Agreement (CRDA) with the EPA at their main biological research facility.

Under the CRDA, Bioclean provided two Ph.D. microbiologists as lead researchers and two lab technicians. The EPA provided lab and office space, equipment, additional lab technicians, as well as access to all researchers at the laboratory. The CRDA provided that the EPA would own any discoveries at the lab and Bioclean would have an exclusive license to commercialize them. The EPA would receive a royalty on the use of any of the discoveries.

The process of isolating naturally occurring microorganisms that use targeted wastes as food is painstaking, often requiring several years. Once the microorganisms are isolated, there is a long, involved process of proving the efficacy of the environmental treatment including field trials under the supervision of the EPA. Even after proving the commercial viability of the treatment, the typical lead-time for environmental remediation projects is twelve months.

In 1990, the first successes were achieved in the laboratory and Bioclean was ready to begin commercial trials. However, before the venture capital firm would advance the money necessary for further development, they required that a professional management team be hired. As mentioned, this requirement is consistent with the popular belief that quickly establishing a complete and experienced team is key to success. Towards this end and consistent with the notion that successful new venture managers are likely to be successful again, Bioclean hired a president who had experience in starting and growing an environmental remediation company. The president's prior company, Greenway, had managed many large, EPA-contracted, environmental remediation projects.

Acting in manner consistent with accepted wisdom, the new president moved quickly to complete what he perceived as the critical components of the top management team by hiring a vice president of engineering to manage interactions with the EPA, a vice president of operations who was experienced in site cleanup operations, a vice president of finance to continue to look for investment capital and to report to the venture capital firm, a vice president of research and development, a senior project manager, and a senior marketing representative. To support these people, a secretary, an office manager, and several operations technicians were also hired.

Inasmuch as the firm had not yet begun selling its new product, the cost of employing this complete management team led to considerable losses. To offset some of the cost, the new management team began pursuing additional business in the form of conventional remediation projects. Such aggressiveness was consistent with the CEO's experiences and had been effective in the past in helping other ventures gain legitimacy. Several biological remediation projects involving readily available and existing technology were obtained and performed. These projects were profitable but required considerable management attention and investment in conventional remediation equipment. The result was a continuing need for funding from the venture capitalist. However, a more important consequence of pursuing conventional cleanup contracts was that resources were diverted from the primary research effort, including the involvement of the Ph.D. researchers in marketing and technical consulting on the new contracts. As these projects accumulated, management's focus was further diverted from the research, development, and refinement of its core technology. The consequence of this misdirected focus was considerable delay in the development of the new products. Moreover, the increasing focus on conventional projects and on staff and resources to support that focus led to ever-escalating overhead, which only further fueled the desire for more billable projects.

By 1993, the venture capital firm had reached the limit of what it would invest yet Bioclean was still losing money and demanding more resources. The completion of the new and highly innovative products that could yield the necessary high margins was still months if not years away. In short, the company had a well-qualified management team, with a proven history of success, which had lost its focus and support. An attempt to sell the company resulted in minimal returns on the sale of the technology and the rights to the CRDA, but no value was received for the remainder. Although different from the first case, the lessons of the second are just as clear. This venture represented a tremendous opportunity. Its innovative technology had the potential to dramatically alter the nature of the remediation business. Further, with the sole rights to license the technology and with the support of the EPA, Bioclean had opportunities to reap considerable margins for some time into the future. However, the firm lost focus and ultimately failed. How could this happen given the knowledge and experience of the management team? As discussed throughout, the answer lies in the issue of fit, or in this case, misfit between the level of innovation and the composition of the top management team.

There was a clear absence of causal understanding in this case, brought about by the presence of a management team whose abilities were not yet needed and whose costs were not yet productive. This team of individuals had a proven track record and had successfully launched new ventures in this industry before. Thus, when faced with the ambiguity of this new situation, they fell back on established patterns of behavior. Indeed, their success with these established patterns might well

have contributed to their inability to do anything else. Research has shown that teams can become locked into patterns of past behavior, replicating successful behaviors and discontinuing unsuccessful ones (Autio, Sapienza, & Almeida, 2000). Over time, this tendency can create unwillingness to experiment and blindness to new information that is uncovered.

Bioclean's management team consisted of knowledgeable specialists. These individuals had worked together before at Greenway and were comfortable with one another's abilities. As such, they had learned to take charge on certain tasks themselves while relying on their fellow team members to perform others. They had also learned to be independent and to quickly reach out to span the gap between the firm and the environment. Their low level of interdependence further facilitated this tendency.

When placed in the position of managing Bioclean, they behaved as they had with Greenway. However, in this instance, those behaviors did not fit the requirements of the new venture and its strategy. There was a need to focus on the core technology to get it to market. However, the desire and ability to sell new work was a distraction from this. There was a need to establish legitimacy for the firm as the provider of choice for the technology. However, the expansion into more traditional forms of remediation sent Bioclean in the wrong direction. Finally, there was a need for an internal focus, designed to build causal understanding of the technology and the potential it represented. However, the presence of existing schema and established behavior patterns undermined this effort. Thus, a top management team that had a strong track record and a deep reservoir of knowledge and experience failed to implement what could well have been a winning strategy.

CONCLUSIONS

The lessons learned since top management teams were first introduced to the strategic management literature have particular relevance for those interested in new venture management. Indeed, perhaps at no other time in a firm's history is it as dependent upon those few people at the top as when it is new. Thus, entrepreneurs, venture capitalists, and new venture managers alike could all benefit from applying what has been learned over the years about top management teams to their firms.

Specifically, fit between the management team and task is important. Whether in large diversified multinationals or in small, specialized startups, the notion of fit seems to be generally applicable. But that is not surprising. Everyone has observed how all people are not equally well suited to all situations. Similarly, all teams are not equally well suited to all ventures. The question becomes what type of team best suits what type of venture? Of course, this question begs that of how to distinguish between the ventures themselves. Here again, research provides some guidance. As ventures undertake strategies that are more or less innovative, the demands placed upon their management teams vary. To achieve fit and effectively implement the strategy, as these demands vary, so too should the experience, skill, and ability profiles of the TMT.

This was illustrated in the cases of Greenway and Bioclean. In the case of Greenway, the company was not particularly innovative in that it was not seeking to do anything different from its competitors. Clients, suppliers, managers, and employees already had considerable causal

understanding at the time the company was founded. The key to success was to quickly establish legitimacy and begin competing for work. This was accomplished primarily through hiring a large team of specialists with significant experience in the environmental field and allowing them to do what they did best with little interference. Greenway's team had considerable knowledge, skill, and experience, having worked in the environmental industry for many years doing similar jobs. Many of the TMT members had worked together before and so had developed shared values and beliefs from their prior experience. There was little need to develop new knowledge. They simply had to apply existing precedent and schema to the new situation.

Conversely, in the case of Bioclean, although the team members had prior experience and industry knowledge, those characteristics were not applicable to the new and innovative venture. Unlike at Greenway, there was little causal understanding. As such, the team was not able to easily establish legitimacy, despite serving the same industry, because the new methods were not readily understood or accepted. Moreover, the team was not able to draw on its history of interaction patterns and practices as those patterns and practices were designed around highly segmented and individual effort with a low level of interdependence. Thus, the team that had so benefited from its specialized expertise, efficiency, and familiarity in one setting, found itself and those same characteristics ill-suited to another.

From the available research and from stories like these and others like them, a few general principles can be deduced. One such principle is that, like strategy implementation, new venture management is a process that occurs over time. Researchers and managers together often like to categorize firms in one-way or another (i.e., new vs. established, low cost vs. differentiated, innovative vs. imitative, etc.). Despite these labels, it is important to remember that new firms survive to be old ones, that innovative firms grow to appear less innovative, and that, at different points along this path, the needs and demands of the firm may change. Thus, while all new ventures may ultimately require the services of a large and functionally diverse team, the pace at which they complete that team can and should vary.

In addition, at different points along that path, a venture may or may not be prepared to deal with the costs of a large and experienced team. In the earliest stages, when capital preservation is most crucial, it is important to recognize that management talent costs money and that the burden of this expense can become a distraction and so divert the team's attention away from the development of causal understanding of the venture and its strategy.

Having assembled its talented team, Bioclean was forced to find alternate ways to cover its costs, diverting efforts from the main strategy of commercializing its proprietary treatment process. As this team was more comfortable with the tried-and-true methods they had used previously, more attention was directed to selling those services than to building the new understanding and knowledge necessary to implement the intended strategy. Had the firm continued with its smaller, more research oriented staff, it would have been able to devote considerably more resources to proving the efficacy of the new technology, thereby establishing legitimacy in the eyes of key stakeholders.

It also seems that experience is not necessarily the key to success. Experience can be helpful in that it can provide a framework of established schema for managers to draw upon when confronting uncertainty. Greenway's management team faced many liabilities in their effort to build

the new firm. Those liabilities, however, were minimized by the presence of familiarity. The members of the team had worked in this industry; moreover, they had worked together. They knew what was expected and they knew what to expect from one another. These assurances provided a foundation of certainty from which the team could operate to address their uncertainty. All they needed to do was to draw upon their experiences, make the required connections, and gather the information their new firm needed

However, while this experience was beneficial to Greenway, it was not so to Bioclean. Indeed, experience may have proved detrimental, as it may have hastened the push for more traditional contracts and limited the progress of the development of high-margin, proprietary technologies. Thus, it may well be that the value of experience has been overstated. Managing a new venture is all about learning. However, different new venture managers will need to learn different things. At the earliest stages of development, highly innovative firms may want to diverge from common knowledge and accepted wisdom. They may want to experiment with new processes and business models that challenge established paradigms. In such cases, an experienced team may well be a hindrance.

Finally, it is important to recognize that newness is a multifaceted concept. There is the sort of newness that relates to youth and there is the sort of newness that relates to differentness. While both present certain challenges, the newness that relates to differentness is the more problematic. New business models require a whole new understanding of the environment, the relationship to the customer, and the management of operations. Moreover, these understandings must be developed with little help from outside, as truly different firms can find few precedents from which to draw. Differentness also creates problems for the venture's constituents. Being so unfamiliar, truly different businesses have difficulty establishing relationships with vendors, creditors, and customers. Thus, as research has shown, truly different firms have higher risks of mortality (Sing, Tucker, & House, 1986).

Unfortunately, many in the new venture field have lost sight of this distinction. As a result, the issues of youth and novelty have become somewhat compounded as all new ventures have been lumped together. From a practical perspective, this is potentially hazardous. Young ventures do face some common difficulties associated with the uncertainties of organizing and managing new people in a new environment and these difficulties should not be understated. However, they are altogether different from the liabilities associated with trying to be both new and different (Stinchcombe, 1965). As such, these different contexts necessitate different sets of managerial skills and abilities to address them.

Although in no way a complete set, these few implications serve together to make one final point, which is that the literature on top management teams and strategy implementation and the literature on entrepreneurship and new venture management can do much to inform researchers and practitioners of both. As mentioned, there is likely no time when a firm is so heavily reliant upon the skills and abilities of its top managers as when it is new. With no inertia and little capital, new ventures give their management teams little margin for error. Thus, it is particularly and especially important that the two fit well together.

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BUSINESS LOCATION RELATES TO LEARNING EXPERIENCE OF THE NEW VENTURE CREATION - RURAL VERSUS URBAN ENTREPRENEURS

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ABSTRACT

This paper reports the preliminary results of an on-going national study of small businesses to determine the impact of entrepreneurial decisions on rural and urban entrepreneurs, their spouses, and their children. One hundred and thirty-five retail and service business owners responded to questions regarding their expectations and realities of new venture creation related to the financial situation, business process, and family relationships from the entrepreneurs' perception. Rural and urban entrepreneurs in the sample showed similar demographic profiles. Both rural and urban entrepreneurs revealed consistent expectations as well as reality checks regarding financial improvement, personal satisfaction, and family happiness. However more urban entrepreneurs experienced significant changes in their marriage relationship after starting the businesses. Rural entrepreneurs seemed to be less optimistic before and after starting their businesses compared to urban entrepreneurs. Implications related to entrepreneurial decisions and different learning experiences when entrepreneurs consider starting again are also discussed.

INTRODUCTION

Evidence revealed by numerous researchers has shown that small businesses play a key role in improving the welfare and quality of life for both urban and rural residents around the world. According to the definition of the US Census (www.census.gov/prod/2001pubs/mso-01icdp.pdf), an "urban area" includes urbanized areas and other urban entities that consist of densely settled territory with a population of 50,000 or more inhabitants. The rest of the areas are "rural". Through conversations with experts in Small Business Development Centers and other institutions, there seem to be clusters of small businesses distributed unevenly between rural and urban areas. Early Marxian and Weberian theories discussed that independent entrepreneurs were one of the four social classes represented different legacies in rural economic development, became the backbone in rural communities, and wealth was generally accumulated to acquire or develop an independent business (Flora & Flora, 2004). However entrepreneurs in rural regions seemed to face different challenges than urban entrepreneurs. For example, Counsel for Advocacy Jere W. Glover presented three major points regarding rural small businesses - small businesses in rural areas seemed to have more difficulties in financing, small businesses had higher risks to for financial support from local small banks when banks merged, and the small size of rural businesses and the lack of competition from other banks increased the costs to borrowers (US Small Business Administration, 2001).

Previous literature covered a wide variety of entrepreneurship theories that described general strategies, processes, and reactions to new venture creation (e.g. Timmons, 1999; Bygrave & Hofer, 1991; Bygrave, 1989; Moore, 1986; Carland & Carland, 2000), yet there has been limited information regarding business location and its interactions with the decisions and outcomes of new venture creation. Here "business location" refers to the region where the business is, not the specific business site. Entrepreneurship is as important in rural areas as in urban areas in terms of economic development and contribution. Although the general strategies or processes would apply to any new venture creation, it is not clear whether rural entrepreneurs evaluate new venture opportunities and their impact on family relationships different from urban entrepreneurs. One would wonder: What are the differences between rural entrepreneurs and urban entrepreneurs in their demographics? Do they have similar expectations in business objectives and family welfare? Do they have a similar learning experience (either positive or negative) after running the business? How do their family members assess the new venture and its impact on family relationships? These are only a few questions that have not been explored in previous literature related to "rural versus urban entrepreneurs".

This article presents a conceptual framework as well as empirical survey results to compare responses from rural entrepreneurs and urban entrepreneurs regarding their perceptions on business objectives and family relationship, before and after they started the businesses. This is an on-going study started in 2000. The goal of the long-term study is to survey small business owners nationwide across industries to (1) understand differences between rural and urban entrepreneurs given demographic information, and (2) compare the learning experiences between rural and urban entrepreneurs by examining the impact of the new venture creation on both business decisions and family relationship. This article includes preliminary results from the first two industries surveyed - Service and Retail, which were the two most popular industries in both rural areas and urban areas according to the US Economic Census.

The results presented in this article were not conclusive and should not be generalized for all small businesses in the US. However, the results provided some insight into the consequences of starting a new venture in rural and urban areas, the impact of starting new ventures on entrepreneurs and their families, and whether or not starting the businesses had any impact on entrepreneurs' perceptions related to business decisions and family relationship.

LITERATURE REVIEW

Previous literature related to entrepreneurship could be summarized into two categories - micro perspectives and macro perspectives. From micro perspectives, a group of researchers discussed and examined entrepreneurs' characteristics, personality, ideas, skills, experience, and psychological predisposition associated with new venture creation (Carland & Carland, 2000; Stevenson, et al. 1999; Bhide, 2000; Longenecker, Moore& Petty, 2000; Bygrave, 1994; Kuratko & Hodgetts, 1998; Hodgetts & Kuratko, 1995; Timmons, 1999; Jennings, 1994; Lambing & Kuehl, 1997). A general consensus of a "typical entrepreneur" describes a person who is optimistic, is able to detect or create opportunities, is filled with ideas, is enthusiastic about own ideas, wants to be independent, wants to gain control, might not have tremendous experience but is willing to try, is

willing to take risks, and aims to achieve high expectations. Carland & Carland (2000) provided a comprehensive review of previous literature associated with the entrepreneurial psyche, and discussed multiple personal factors that drove the new venture creation decisions initiated from cognition. The previous research became the backbone of this study when examining the difference between rural and urban entrepreneurs.

Another group of researchers studied "family" as a micro entrepreneurial entity and focused on family businesses, family involvement in business decisions, and consequences of family involvement in business activities. Bygrave (1994) indicated that family responsibilities played an important role in the decision whether to start a company. Sometimes family members made minor sacrifices for the good of the business including long hours taken by the business. Occasionally, however, the clash between business interests and family interests was so persistent or so severe that entrepreneurs must decide which came first (Longenecker, Moore, & Petty, 2000). Quality family relations were influenced by uncertain income, risk of losing family investments, long hours and hard work, and high stress (Dunn & Liang, 2001; Liang & Dunn, 2002). Hodgetts and Kuratko (1998) mentioned that starting a new venture used much of the entrepreneur's energy and time. Entrepreneurs who were married, and especially those with children, exposed their families to the risks of an incomplete family experience and the possibility of permanent emotional scars. Several researchers also concluded that business owners had to face the fact that entrepreneurship and parenthood did not match in perfect harmony, and the pressure on female entrepreneurs was evolving dramatically (Page, 1999; Davies, 1999).

Although previous literature discussed and examined the interactions between entrepreneurs and family members, nothing was mentioned about rural or urban locations influence on the business and family relationships. The document released by the U.S. Small Business Administration discussed the challenges in managing a family business (U.S. Small Business Administration, MP-3). When family members work together, emotions might interfere with business decisions. Several studies provided some insights regarding risks of entrepreneurs who tried to include their spouses in the businesses (Scroggins, 1996; Nelton, 1996; Lieberman, 2000; Landes & Frankenberg, 1998; Powell & Foley, 1997; Bures, et al. 1995-1996). These studies reported potential challenges of having a spouse work in the business, such as disagreement associated with decision hierarchy, who had more control, lack of quality time together, lack of financial confidence, stress and pressure from both family and business responsibilities, and diminished support from each other. There have been no discussions related to any between rural entrepreneurs and urban entrepreneurs in their evaluation of family relationship and business decisions. There was also very limited qualitative or quantitative research related to expectations and reality of starting a new venture and the impact on entrepreneurs or their families, given different business locations.

Many articles used a macro approach to study entrepreneurship, and revealed the linkages and interactions between rural entrepreneurship, sustainable economic development, income and welfare issues, employment opportunities, use of resources, creating business potential for young generations in rural areas, influence on industrialization and business patterns, and contribution to rural revitalization (Vysatova, et al. 2001; Cecora, 1999; Carter, 1999; Simmons & Kalantaridis, 1996; Nimley, 1993; Ba, 1992; Goreham, et al. 1994; John, 1990, 1991, 1992, 1993; Bogaert, 1989; MacKenzie, 1992; Markve, et al. 1992; Caudillo, 1991; Gitobu & Gritzmacher, 1991; Due, 1991;

Narasimha, 1989; Visher, 1991; Vyakarnam, 1990; Bastow-Shoop, et al. 1990; Buss & Lin, 1990; Bar-El & Felsenstein, 1990; Fendley, 1989; Miller, 1985; Gladwin, et al. 1989; Popovich, 1988; Halder, 1989; Popovich & Buss, 1989; Pulver, 1987; Hobbs, 1987; Watkins & Allen, 1987; Friedman, 1987; Frederick, 1988; Ryan, 1988; Malecki, 1988; Reid, 1988). This literature also indicated that there had been a transition in rural businesses, which moved from agricultural based businesses to general enterprises. Limitations in production factors such as skilled labor and financial support have influenced the development of rural enterprises (US SBA, 2001; King, et. al. 1999). For example, rural communities had experience significant labor shift away from jobs in the manufacturing industry to retail and service industries (McNamara & Kriesel, 1993). Small manufacturers in rural communities lose high technology or high skilled labor that are critical to maintain or to grow the businesses (King, et. al. 1999). There has been an increasing interest in the potential for rural entrepreneurs to start new businesses and generate economic activity (Federal Reserve Bank of Kansas City, 2001). However it is still a puzzle to researchers how rural entrepreneurs make their business decisions compared to urban entrepreneurs, and how these business decisions impact on their family relationships.

Does it make any difference for entrepreneurs' expectations related to the new venture creation when they are in rural or urban areas? What are the impacts on business and family relationship before/after creating and running a new venture from rural and urban entrepreneurs' perception? How do their spouses and children reflect on the business and family relationships from the entrepreneurs' perception? These are a few questions that this research attempts to examine. This research will also fill the gaps in previous studies by examining how entrepreneurs' expectations coincide with reality and family responses from start-ups in rural versus urban areas. Following the factors identified in previous literature, a set of hypotheses have been developed in this study to test

1) Whether there is any difference in demographics between rural and urban entrepreneurs, such as age, gender, type of business, and years in business. The null hypothesis states "there is no significant differences" while the alternative hypothesis states "there is a significant difference".
2) Whether there is any difference in expectations associated with new venture creation between rural and urban entrepreneurs. The null hypothesis states "there is no significant difference in expected sales, expected profits, expected financial improvement, expected time commitment, expected family's happiness, and expected family's support before creating the new venture". Alternative hypothesis states that there is a significant difference between rural and urban entrepreneurs given all the factors in the null hypothesis.
3) Whether there is any impact on business development and family relationships as a result of creating and running the business between rural and urban areas. The null hypothesis states "there is no significant difference between rural and urban entrepreneurs in evaluating actual sales, profits, time commitment, and financial improvement". The null hypothesis related to family relationship states "running the business has the same impact on personal life, marriage life (for those married), and family relationship between rural and urban

entrepreneurs". Alternative hypotheses state that "there is a significant difference between rural and urban entrepreneurs' perception" regarding these factors in the null hypotheses.

4) Whether the same factors have identical effects on rural and urban entrepreneurs' decisions to start a new venture again. The null hypothesis states "those entrepreneurs who have positive experience after starting the business such as higher sales, higher profits, and better family support are more likely to start a business again, regardless of the location of the business". The alternative hypotheses state that different factors have different effects on entrepreneurs' decisions to start again depending they are in rural or urban areas.

A CONCEPTUAL FRAMEWORK

The literature review provided a rich background in entrepreneurship theories and family relationship theories related to entrepreneurial activities. For example, Bygrave et. al. (1996) discussed that recent entrepreneurship studies often adapted two well-known entrepreneurship models - one was developed by Timmons (1989) and the other was developed by Moore (1986). Timmons model introduced key factors in an entrepreneurial process - entrepreneurs and the founding team, opportunity, and resources that were mustered to start the new businesses. In Moore's model, the entrepreneur's personal characteristics combined with the environment to create opportunities during the innovation stage.

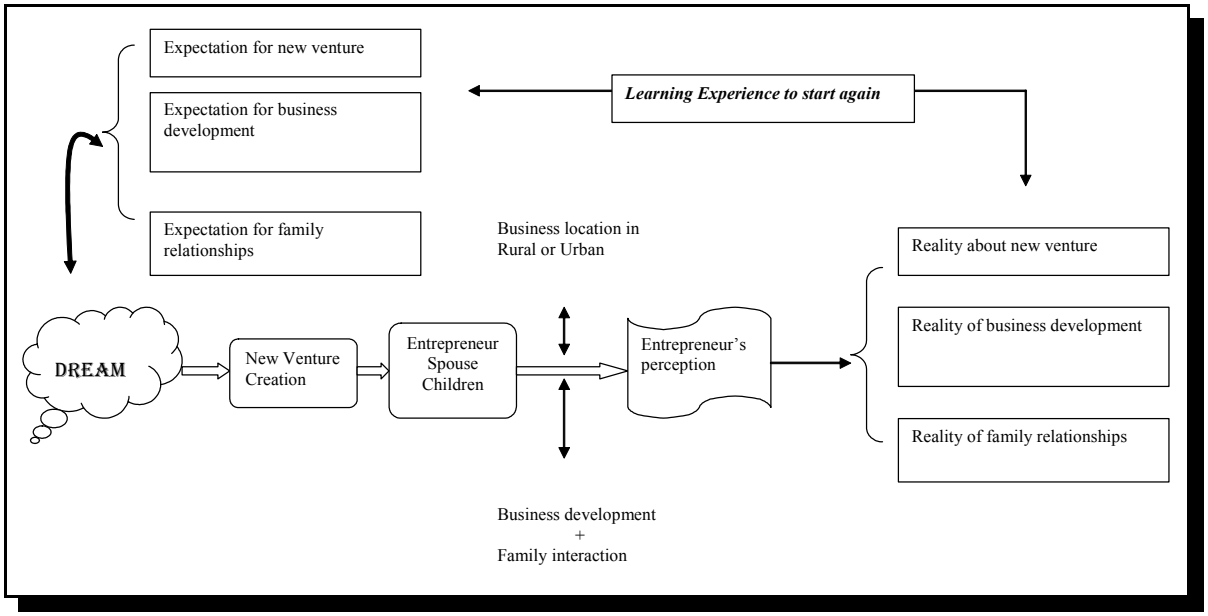
A conceptual framework was developed for this study to link expectations and reality of new venture creation for entrepreneurs and families (Figure 1) following existing entrepreneurship theories. The decision-making process in new venture creation involves two learning cycles: before starting the new venture and after running the business. A dream idea evolves from a combination of entrepreneurial personality and environment (personal characteristics and environment in Moore's model). The dream grows into an innovation due to triggering events (in Moore's model) from which entrepreneurs create opportunities (in Timmons and Moore's models). Entrepreneurs may ask family members to be involved, if they are willing (The Team in Timmons and Moore's models). The business process interacts with the family concerns, especially when spouse and children are involved. How the business and family interact directly or indirectly relate to the location of the businesses. While planning and engaging in business activities, entrepreneurs begin to understand the differences between "expectations" and "reality". Entrepreneurs reflect on this new venture experience, which leads to a learning process when entrepreneurs review and re-evaluate their decisions. Entrepreneurs' perception about this learning experience may be positively or negatively related to the location of the business. Different personal reflections might influence entrepreneurs' assessment later if they were considering starting another new venture.

METHODOLOGY

A sequential probability sample of 1036 retailer and service firms with fewer than fifty employees that had been in the database less than five years was drawn from the American Business Disc, Second Edition, 1999. This database was developed by a consulting firm, and the Small

Business Development Centers in the US used this database frequently. A mail questionnaire was developed, pre tested, and revised to collect the information needed for this study.

Figure 1. A Conceptual Framework for Assessing Entrepreneurs' Perception on Business and Family Relationship Relating to Business Location



The questions in the survey included demographic information (gender, age, location of the business, years in business, number of employees, etc) and perceptive information (expectations and reality related to new venture creation for entrepreneurs and family members). The responses to the demographic information are in "categories". For example "years in business" has five categories - less than five years, six to ten years, eleven to fifteen years, and more than fifteen years. The responses to the perceptive information are either "agree" or "disagree" with given statements related to expectations and reality in business or in family relationship. These statements originated in previous literature that described how entrepreneurs felt about their businesses decisions and how they felt about the family reactions. The new approach in this study was to separate entrepreneurs' perceptions before and after they started the businesses. Some examples of the statements include "the entrepreneur expects the sales to be higher than expected", "the entrepreneur expects the family to be happier after starting the business", "the entrepreneur feels that the spouse is not happy after starting the business", "the entrepreneur does not spend enough time with the family after starting the business", etc.

The survey was designed for business owners only, and it was mailed to their business addresses. The answers reflected the owner's personal view, regarding his/her personal perceptions of spouse and children. There was no expectation that spouses or children would answer the questions directly. It would be preferred to ask both entrepreneur and spouse to respond to the same survey, so that both sides of the story could be revealed. However the personal feelings and

interactions may influence the couples when answering questions about how they evaluate each other. Those entrepreneurs and their spouses who participated in the pre-test actually revealed these concerns. There are also technical constraints and difficulties in requiring entrepreneurs and their spouses to respond simultaneously in a random national sample. These problems include getting access to the spouse (entrepreneurs and spouses may not live in the same area), effective response time and response rate, operating expenses, and labor requirements.

There were 1036 questionnaires mailed, 158 were returned as undeliverable. Since the survey was mailed to a business address, it was possible that some businesses moved to different addresses, or some businesses ceased the operation during the survey period. One hundred and six surveys were returned from the first mailing. A follow up mailing and telephone campaign resulted in 29 additional responses. These were not different from the original returned questionnaires. The 135 completed questionnaires represent a 15 percent response rate. Of the 135 completed questionnaires, 111 were married and responded to the question regarding the spouse working in the business. Those without spouses or children were not expected to respond to those questions related to the family situation.

Cross Tab Tests for Rural Versus Urban Entrepreneurs

Cross Tab analysis was applied to compare the responses of rural entrepreneurs and urban entrepreneurs regarding the demographic information and perceptive information. Cross Tab analysis also related to the first three sets of the hypotheses as indicated in Literature Review: Whether there was any difference in demographic information between rural and urban entrepreneurs, whether there was any difference in expectations associated with new venture creation between rural and urban entrepreneurs, and whether there was any impact on business development and family relationships as a result of creating and running the business between rural and urban areas. Two statistical procedures were applied to test the differences in two categories (rural versus urban): Chi-square and Gamma. Both Chi-Square and Gamma can be applied to answer the question when analyzing ordinal data: "does Y tend to increase as X increases?" (Agresti, 1990). When sample size is large enough, the test results from both procedures should reach the identical conclusions. P-values were calculated for both of the tests in all categories.

Logistic Regression Model

A logistic regression model was applied to verify the fourth set of the hypotheses indicated in literature review: Whether the same factors (from business perspective and family relationship perspective) have identical effects on rural and urban entrepreneurs' decisions to start a new venture again.

Two sets of the logistic regression models were applied to verify the linkages between business location and other variables. The dependent (response) variable was rural entrepreneurs versus urban entrepreneurs (1 - rural, 0 - urban), while the independent (explanatory) variables were demographic information in one set, and entrepreneurs' responses towards business and family relationship in the other set (Table 1). Logistic regression represents a curvilinear relationship

between the response variable and the expected values of the response variables (Agresti, 1990). The coefficients of the logistic regression model estimate the odds of making certain responses versus the baseline scenario (usually represented by 0 in the response variable), given the values of explanatory variables. In this study, the logistic regression was used to (1) evaluate the odds for selected demographic variables related to business location, and (2) evaluate the odds of the business location related to entrepreneurs' expectations versus reality as a result of new venture creation. The Wald test was calculated to see if any explanatory variable significantly influenced the response variable.

Table 1. Variables in the Logistic Regression

Logistic Regression Using Expectation Information			
	Name	Definition	
Response variable	LOCATION	Rural (1) Urban (0)	
Explanatory variables	OPTIMIST	I was too optimistic	Agree (1) Disagree (0)
	HAPPIER	I expected to be happier.	Agree (1) Disagree (0)
	FAMILHAP	I expect my family to be happier.	Agree (1) Disagree (0)
	FINANBET	I expect to be financially better off.	Agree (1) Disagree (0)
	FAMIFINAB	I expect my family to be financially better off.	Agree (1) Disagree (0)
	SPOUSENT	I expect my spouse to be enthusiastic.	Agree (1) Disagree (0)
	CHILDEN	I expect my children to be enthusiastic.	Agree (1) Disagree (0)
Logistic Regression Using Reality Variables			
Response variable	LOCATION	Rural (1) Urban (0)	
Explanatory variables	UP	My business is up and running well.	Agree (1) Disagree (0)
	SALEHIGH	Sales are higher than I expected.	Agree (1) Disagree (0)
	PROFITHI	Profits are higher than I expected.	Agree (1) Disagree (0)
	HARDER	Starting a business has been harder than I expected.	Agree (1) Disagree (0)
	LONGER	Starting took longer than I expected.	Agree (1) Disagree (0)
	RESHAPP	I am actually happier after starting the business.	Agree (1) Disagree (0)
	RESPOUHA	My spouse is actually happier after starting the business.	Agree (1) Disagree (0)
	RESCHDHA	My children are happier after starting the business.	Agree (1) Disagree (0)
	RESFINAB	My financially situation is better after starting.	Agree (1) Disagree (0)
	RESPOUBE	My spouse believes we are financially better off after starting the business.	Agree (1) Disagree (0)

Table 1. Variables in the Logistic Regression			
	RESCHDBE	My children believe we are financially better off after starting the business.	Agree (1) Disagree (0)
	NOTIMEMY	I have no time for myself after starting the business.	Agree (1) Disagree (0)
	NOTIMESP	As a result of starting the business, I have not been able to spend as much time with my spouse as before.	Agree (1) Disagree (0)
	NOYIMECHD	As a result of starting the business, I have not been able to spend as much time with my children as before.	Agree (1) Disagree (0)
	STARTUP	I would start again.	Agree (1) Disagree (0)
	FAMILYSU	The business has no effect on my family relationship.	Agree (1) Disagree (0)
	RELASPOU	My relationship with spouse was strained after starting the business.	Agree (1) Disagree (0)
	RELACHD	My relationship with children was strained after starting the business.	Agree (1) Disagree (0)

SUMMARY OF THE SAMPLE INFORMATION

Responses were received from 40 states from California to Maine and from Texas to Minnesota. Rural responses were received from 36 states and urban responses from 27 states across the country. Rural entrepreneurs represented 52.3 percent of the responses. Seventy-nine percent of the respondents had less than 5 fulltime employees and 86.3 percent had less than 5 part time employees. Most of the entrepreneurs were under fifty years old (67.9 percent), and 74.7 percent of those married had spouses 50-year-old or younger. Sixty percent of the children were either younger than 10 or older than 21. Eighty percent were currently married (including separated) at the time of the survey, 6.2 percent were divorced, and 10.8 percent were not married. Married respondents had 33.3 percent of their spouses who worked full-time in the business, 35.1 percent had spouses who worked part-time in the business, and 31.5 percent of the spouses did not work in the business. Major sources of funds used to start the business included personal savings (32.4 percent), family savings (12.6 percent), and loans (22.5 percent). Significantly, over 44 percent used personal or family savings. This study was based on the entrepreneurs who revealed whether their businesses were in rural or urban areas.

DEMOGRAPHIC INFORMATION AMONG RURAL AND URBAN ENTREPRENEURS

Demographic information from business owners included years in business (Table 2), type of business started (Table 3), region (Table 4), age (Table 5), gender (Table 6), and annual sales

(Table 7). Over one-half of the rural entrepreneurs had started in the last five years compared to less than 40 percent of the urban entrepreneurs. The type of the businesses did not seem to relate to the business locations. Most of the respondents were located on the East Coast. The ages of entrepreneurs were very similar between rural respondents and urban respondents, with the majority of them over 40 years old. More urban entrepreneurs were male compared to rural entrepreneurs. Interestingly, a slightly larger proportion of urban entrepreneurs had sales under $500,000 compared to rural entrepreneurs. None of the demographic variables showed significant statistical differences between rural and urban entrepreneurs.

Table 2. Percentage of Rural and Urban Entrepreneurs by Years of the Business Experience

Years in Business	Rural	Urban	P-value for Chi-Square	P-value for Gamma Test
			0.144	0.144
<5 years	55.1	38.5		
6-10 years	21.7	33.8		
11-15 years	5.8	12.3		
>15 years	17.4	15.4		
Total	100.00	100.00		
Number of total responses	69	65		

Table 3. Percentage of Rural and Urban Entrepreneurs by Business Types

Type Business	Rural	Urban	P-value for Chi-Square	P-value for Gamma Test
			0.785	0.810
Eating and Drinking	21.7	21.2		
Automotive	10.1	7.6		
Apparel and Accessories	13.0	18.2		
Flowers, Gifts and Related	15.9	21.2		
Services	17.4	10.6		
Others	21.7	21.2		
Total	100.00	100.00		
Number of total responses	69	66		

Table 4. Percentage of Rural and Urban Entrepreneurs by Region				
Region	Rural	Urban	P-value for Ch-Square	P-value for Gamma Test
			0.220	0.292
West	11.6	22.7		
Central	33.3	27.3		
East	55.1	50.0		
Total	100.00	100.00		
Number of total responses	69	66		

Table 5. Percentage of Rural and Urban Entrepreneurs by Age				
Age of the Entrepreneur	Rural	Urban	P-value for Chi-Square	P-value for Gamma Test
			0.906	0.825
Under 40 years old	19.1	18.5		
40-50 years old	47.1	50.8		
Over 50	33.8	30.8		
Total	100.00	100.00		
Number of total responses	68	65		

Table 6. Percentage of Rural and Urban Entrepreneurs by Gender				
Gender	Rural	Urban	P-value for Chi-Square	P-value for Gamma Test
			0.205	0.316
Female	46.4	37.9		
Male	53.6	62.1		
Total	100.00	100.00		
Number of total responses	69	66		

Table 7. Percentage of Rural and Urban Entrepreneurs by Annual Sales				
Annual Sales	Rural	Urban	P-value for Chi-Square	P-value for Gamma
			0.288	0.450
Less than $500,000	69.6	75.4		
$500,000 +	30.4	24.6		
Total	100.00	100.00		
Number of total responses	100	32		

EXPECTATIONS AND REALITY BETWEEN RURAL AND URBAN ENTREPRENEURS

Running a successful family business is a multi-dimensional task. Entrepreneurs with a spouse and children need to attend to business issues and to their family life. Sometimes there is a problem for entrepreneurs to balance business and family affairs (as indicated in literature review), especially when spouse and/or children are involved in both activities. How would rural and urban entrepreneurs assess business development and family interaction in the process of the new venture creation? This survey included questions for entrepreneurs to reveal their perception regarding both family and business issues. Some questions related to the expectations of the business processes, sales, profits, and family reactions to the new venture before starting. Other questions related to the reality after the business was established, such as personal and family reactions after running the businesses, family time spent together, and changes in the relationship with spouse and children. Rural and urban entrepreneurs' perceptions provided insight into the impact of their business decisions on themselves and their families (Table 8).

Regardless of whether they are in rural or urban areas, the majority of the respondents believed that their businesses were up and running well, and sales were higher than expected. Most of the rural and urban respondents also agreed that starting the businesses took longer than expected, and starting was harder than expected. Even though both rural and urban entrepreneurs indicated that the process of new venture creation was challenging, they did not think they were too optimistic about the new venture and their income was good before they started the new venture. These findings coincided with the previous literature describing the characteristics of entrepreneurs, such as focusing on achievement, being optimistic, ambiguity tolerant, risk taking, and personal values (Moore, 1986).

Most of rural and urban respondents revealed that profits were lower than expected, which could result from overestimated sales and/or underestimated costs. When asked how their spouses and children evaluated the new venture, a slightly higher percentage of the urban entrepreneurs believed that their spouses and children had been enthusiastic before starting the new venture compared to rural entrepreneurs. More urban entrepreneurs expected that they and their families

would be happier before starting the new venture compared to rural entrepreneurs. More urban entrepreneurs agreed that they were actually happier after running the businesses compared to rural entrepreneurs, while they did not believe that their spouses were actually happier after starting the businesses. When asked whether their family members were actually happier after starting the businesses, over fifty percent of the respondents admitted that their spouses were not happy regardless their business location. In general more entrepreneurs expected themselves and their families to be happier before starting the new venture compared to those who were really happier after starting. A lot of entrepreneurs expected to be financially better off before starting the businesses, yet financial expectations were not met for most of the rural respondents. When asked about the financial expectations of their spouses and children, the respondents revealed different perspectives. Approximately fifty-three percent of the rural entrepreneurs believed that their spouses did not agree that new venture actually improved family financial situation, while 51.9 percent of the urban entrepreneurs believed that their spouses thought that family financial situation was improved after new venture creation. Children seemed to believe, according to our respondents, that the new venture improved family financial situation for most of the rural and urban entrepreneurs.

What happened to the quality of life for the entrepreneurs and their families after they started the businesses? A slightly higher percentage of the rural entrepreneurs felt that they did not have time for themselves or for their children compared to urban entrepreneurs. Interestingly more urban entrepreneurs felt that they did not have time for their spouses. The only significant result was in the relationship with spouses using both Chi-square test and Gamma test. More urban entrepreneurs agreed that their relationship with their spouses was strained due to the new venture. On the contrary a majority of the rural entrepreneurs did not agree that their relationship with spouses was strained after running the businesses. Neither rural entrepreneurs nor urban entrepreneurs felt any changes in their relationship with their children after running the businesses. Over fifty percent of the entrepreneurs (rural or urban) agreed that the new venture indeed had some impact on their marriage relationship. Regardless of how their expectations and reality changed family relationships, the majority of the entrepreneurs (rural or urban) believed that they would start the businesses again and that their families would support them again. A slightly higher percentage of the urban respondents believed that their family would support them if starting the businesses again.

Table 8. Percentage of Rural and Urban Entrepreneurs by Personal Perspectives about Their Behavior and the Impact on Themselves and Their Families

		Rural	Urban	P-value for Chi-Square	P-value for Gamma Test
Business is up and running well (n=69,65)	Agree	87.0	84.6		
	Disagree	13.0	15.4	0.444	0.698
Sales are higher than expected (N=69,65)	Agree	56.5	61.5		
	Disagree	43.5	38.5	0.340	0.554

Table 8. Percentage of Rural and Urban Entrepreneurs by Personal Perspectives about Their Behavior and the Impact on Themselves and Their Families					
		Rural	Urban	P-value for Chi-Square	P-value for Gamma Test
Profits are higher than expected (n=69,65)	Agree	34.8	38.5		
	Disagree	65.2	61.5	0.396	0.659
Starting the business is harder than expected (n=69,66)	Agree	69.6	69.7		
	Disagree	30.4	30.3	0.568	0.987
Starting the business took longer than expected (n=67,66)	Agree	62.7	65.2		
	Disagree	37.3	34.8	0.454	0.767
My expectations were too optimistic (n=69,65)	Agree	44.9	46.2		
	Disagree	55.1	53.8	0.512	0.887
Income was good before starting the business (n=67,66)	Agree	73.1	81.8		
	Disagree	26.9	18.2	0.161	0.228
My spouse was enthusiastic before starting the business (n=59,57)	Agree	76.3	78.9		
	Disagree	23.7	21.1	0.451	0.729
My children were enthusiastic before starting the business (n=42,47)	Agree	64.3	76.6		
	Disagree	35.7	23.4	0.149	0.201
I expected to happier (n=67,65)	Agree	70.1	78.5		
	Disagree	29.9	21.5	0.186	0.272
I am happier (n=69,65)	Agree	63.8	76.9		
	Disagree	36.2	23.1	0.202	0.319
Expected family to be happier (n=62,59)	Agree	63.0	76.3		
	Disagree	37.1	23.7	0.081*	0.106
My spouse is happier (n=61,54)	Agree	47.5	44.4		
	Disagree	52.5	55.6	0.442	0.739
My children are happier (n=51,51)	Agree	52.9	62.7		
	Disagree	47.1	37.3	0.211	0.314
I expected to be better off financially (n=67,64)	Agree	82.1	76.6		
	Disagree	17.9	23.4	0.286	0.434
I am better off financially (n=67,63)	Agree	46.3	52.4		
	Agree	53.7	47.6	0.301	0.485
Family expected to be better off financially (n=62,59)	Agree	74.2	81.4		
	Disagree	25.8	18.6	0.234	0.341

Table 8. Percentage of Rural and Urban Entrepreneurs by Personal Perspectives about Their Behavior and the Impact on Themselves and Their Families

		Rural	Urban	P-value for Chi-Square	P-value for Gamma Test
Spouse thinks we are better off financially (n=58,52)	Agree	46.6	51.9		
	Disagree	53.4	48.1	0.355	0.573
Children think we are better off financially (n=43,47)	Agree	62.8	57.4		
	Disagree	37.2	42.6	0.382	0.604
Do not have time for myself as before (n=69,66)	Agree	79.7	71.2		
	Disagree	20.3	28.8	0.172	0.250
Not able to spend time with my spouse (n=62,55)	Agree	56.5	60.0		
	Disagree	43.5	40.0	0.421	0.697
Not able to spend time with my children (n=55,52)	Agree	61.8	55.8		
	Disagree	38.2	44.2	0.330	0.525
Relationship with my spouse is strained (n=63,54)	Agree	34.9	50.0		
	Disagree	65.1	50.0	0.072*	0.097*
My relationship with my children is strained (n=56,53)	Agree	23.2	20.8		
	Disagree	76.8	79.2	0.469	0.756
Starting the business has no effect on my marriage (n=60,53)	Agree	45.0	41.5		
	Disagree	55.0	58.5	0.427	0.708
My family would support me again (n=66,58)	Agree	72.7	74.1		
	Disagree	27.3	25.9	0.511	0.859
I would start the business again (n=69,64)	Agree	71.0	81.3		
	Disagree	29.0	18.8	0.119	0.162

Note: "*" indicates 10% significance, "**" indicates 5% significance.

FACTORS THAT INFLUENCE ENTREPRENEURS' PERCEPTION OF EXPECTATIONS AND REALITY IN BUSINESS AND FAMILY LIFE

The previous section summarized the entrepreneurs' perceptions of each individual factor associated with new venture creation and family relationships. People might ask: "Which factors are more influential on rural and urban entrepreneurs when all the factors are considered?" The Logistic Regression Model provided an appropriate test to verify those influential factors from entrepreneurs' responses. A backward stepwise selection process was applied to select appropriate

variables to be included in the regression model and to avoid serious correlations among variables. The first Logistic Regression model used all the variables related to entrepreneurs' perception of expectations in business development and family life (Table 9). The second Logistic Regression model included variables related to entrepreneurs' perception on business development and family relationships after running the business (Table 9). Holding everything else constant, rural entrepreneurs were less likely to feel they were too optimistic, less likely to expect their family to be happier, and less likely to think their children were enthusiastic than urban entrepreneurs before they started the new venture. Rural respondents were more likely to expect themselves to be happier, yet less likely to expect their family to be happier in the process of new venture creation. There was a statistically significant difference existed between rural and urban entrepreneurs in financial expectations. Rural entrepreneurs were less likely to expect the new venture to improve their family's financial situation, while rural entrepreneurs were more likely to expect the new venture to improve their personal financial situation. Financial goals and motivations had appeared in previous literature frequently related to entrepreneurial activities focused on individualization. The respondents in this study provided a different dimension of the financial goals mixed with other goals in new venture creation that included spouses and children. Rural entrepreneurs were also more likely to feel that their spouse was enthusiastic about the new venture, while they did not feel that their children were enthusiastic before starting the business.

Things changed after they started the businesses. Rural entrepreneurs were more likely to think that their businesses were up and running well. Since the rural respondents were less optimistic before starting the businesses, they might be satisfied easier if they had positive experience in personal and financial achievements. The respondents related to higher profits, financial improvement, and personal and spouse happiness after starting the businesses verified these positive experiences of rural entrepreneurs. However rural entrepreneurs were less likely to believe that their children were actually happier after starting the new venture. Rural entrepreneurs were also more likely to admit that they had less time for themselves and for their family members than urban entrepreneurs. The process of the new venture creation was harder to rural entrepreneurs, and this seemed to link to the time constraints more seriously for rural entrepreneurs. Rural entrepreneurs also revealed that they would be less likely to start again than urban entrepreneurs; even though rural entrepreneurs were more likely to believe that their family members would support them. The impacts of the new venture creation on entrepreneurs and their families had not linked to entrepreneurial experiences before and after starting the businesses in previous empirical studies. The results of this study provided more information to understand how entrepreneurs evaluated their business decisions, how the businesses decisions affected everyone in the family, and what entrepreneurs had learned after starting the businesses. The more negative perception for rural entrepreneurs in family relationships and the business process seemed to create a stronger learning/re-assessment experience for rural entrepreneurs. New venture creation created a more dramatic impact on rural entrepreneurs than on urban entrepreneurs in terms of sales, taking more time to start, and less happiness reaction from their spouses.

Table 9. Results of the Logistic Analysis Relating to Entrepreneurs' Perception				
Logistic Regression Using Expectation Information	Name	B	Wald	P-value
Response variable	LOCATION			
Explanatory variables	OPTIMIST	-0.143	0.084	0.772
	HAPPIER	0.532	0.324	0.569
	FAMILHAP	-1.451	2.616	0.106
	FINANBET	2.824	5.130	0.024**
	FAMIFINAB	-1.943	2.855	0.091*
	SPOUSENT	0.836	0.987	0.320
	CHILDEN	-0.336	0.209	0.647
Logistic Regression Using Reality Variables				
Response variable	LOCATION			
Explanatory variables	UP	1.944	1.574	0.210
	SALEHIGH	-3.421	5.999	0.014**
	PROFITHI	1.437	1.920	0.166
	HARDER	1.923	1.968	0.161
	LONGER	-3.471	5.656	0.017**
	RESHAPP	0.572	0.199	0.656
	RESPOUHA	4.996	7.325	0.007**
	RESCHDHA	-4.086	5.001	0.025**
	RESFINAB	1.087	0.420	0.517
	RESPOUBE	-6.088	6.644	0.010**
	RESCHDBE	3.472	3.638	0.056*
	NOTIMEMY	0.766	0.402	0.526
	NOTIMESP	0.675	0.371	0.542
	NOYIMECHD	1.818	2.269	0.132
	STARTUP	-2.915	4.460	0.035**
	FAMILYSU	1.041	0.674	0.412
	RELASPOU	-2.304	4.889	0.027**
	RELACHD	0.872	0.737	0.391
Note: "*" indicates 10% significance, "**" indicates 5% significance.				

CONCLUSIONS AND IMPLICATIONS

The motivation and characteristics of the entrepreneurs lead them to start new enterprises that they think will make them and their families happier and financially better off. In some cases, those behaviors may result in negative consequences including disappointment, failure, loss of family income, and deterioration of interpersonal relations. The joys and difficulties associated with starting and managing a new venture and/or the success or failure of that venture should result in a learning experience for entrepreneurs. Much of the observed and formal research on these joys and difficulties including both success and failure emphasizes that entrepreneurs do learn and can start new ventures in a more orderly fashion. It is possible that those who experience negative outcomes may decide that entrepreneurship is not for them and decide not to start another venture.

According to the results of this study, most of the circumstantial factors about the family and the business do not seem to differ between rural or urban location. When expectations and reality are compared, both rural and urban entrepreneurs indicated that the business is up and running well, sales are higher than expected, starting the business was harder and took longer than expected, expectations were not too optimistic, spouse and children were enthusiastic, and they expected the family to be happier and financially better off as a result of the business. After running the business, entrepreneurs still think they are happier and financially better off. However their spouses and children, from the entrepreneurs' perceptions, might not feel happier or financially better off.

Several interesting findings can be derived from our study, and have not been discovered in other literature. First, the early motivation theory in management practices assumed that individuals were rational and would make economic choices based on the degree of monetary rewards that closely related to efforts and contribution (Taylor, 1967). Other entrepreneurship theories have also pointed out that other personal factors might contribute more to motivate new venture creation (Carland & Carland, 2000). According to our survey, 70 percent of the spouses have worked full-time or part-time in the new ventures, and only 40 percent of the children have worked full-time or part-time in the businesses. Spouses who have more contribution in the new venture creation probably would care more about the financial returns. Majority of the children in our sample, however, were either younger than 20 or older than 30 who might not involve as much in the business as their parents. Therefore children in these new ventures might not have as high expectations in financial returns compared with their parents, and they seem to be more satisfied with the financial outcomes from entrepreneurs' perspective. Second, rural respondents are more likely to believe that their spouses, but not their children, are enthusiastic about the new venture before starting compared to urban entrepreneurs. After running the business, rural entrepreneurs in our sample conclude that their spouses are more likely to be happier even though their spouses disagree in the financial improvement, compared to urban entrepreneurs' perspective. Rural spouses probably are more likely to share similar objectives with entrepreneurs in new venture creation to improve financial situation and quality of life. Contrarily, rural entrepreneurs indicate that their children were not happier after running the new venture although their children seem to realize a financial improvement, compared to urban entrepreneurs' perspective. Due to time constraint, young children in rural businesses probably feel being neglected because of the business. This topic, how business location influences entrepreneurial decisions involving family members, has not been

discussed in other literature. It is interesting to discover a variation in entrepreneurs' assessment on family members based on business locations.

Entrepreneurs agree that they are not able to spend time with families after running the business, which creates some conflicts in family relationship. Whether in rural or urban areas, the business process definitely interacts with family development. Time has been identified in other literature as one of the key factors for families in business to maintain a balanced life. However this study has discovered something different from other literature - more rural entrepreneurs feel that they have less time for themselves, while more urban entrepreneurs feel that they do not spend enough time with their spouses after running the businesses. The sample information shows that entrepreneurs hold certain expectations for the new venture regardless of the business location, and they assess their family's reaction to the business process consistently. Most interestingly, a larger proportion of urban entrepreneurs would start new ventures again than rural entrepreneurs, and they believe their family would support them to start again.

The sample information also reveals that urban entrepreneurs are more likely to believe that their family members were enthusiastic and would be supportive about another new venture. A slightly higher percentage of urban entrepreneurs expected themselves and family members to be happier, and they are actually happier. Also a slightly higher percentage of the urban entrepreneurs feel that their family feels financially better off after running the businesses. A more positive family interaction and experience in new venture creation seem to have influenced urban entrepreneurs' perception when considering whether to start again. However challenges in family relationships and in the business development process do not seem to be a concern for most of the entrepreneurs.

The results of this study can benefit entrepreneurs, researchers, and practitioners by providing an understanding of how new venture creation relates to family relationships. It is always helpful for entrepreneurs to exchange their ideas with their family, to discuss family issues separately from business issues with everyone involved in the process, and to set aside time from business for the family. More studies in the future could be expanded to:

(1) Increase the sample size and response rate so that the responses could be more representative
(2) Include both entrepreneurs and their spouses when conducting the surveys.
(3) Conduct surveys in several industries to get a boarder specimen of responses from both entrepreneurs and their spouses, and to compare and contrast.
(4) Interview or survey those entrepreneurs who decided not to start the new ventures, and to find out if business location has influenced their decisions.
(5) Conduct continuous surveys over time to determine if there are trends or patterns in entrepreneurial behavior related to family relationships and business location.

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FAMILY BUSINESS CHARACTERISTICS AND MANAGEMENT PRACTICES: AN ANALYSIS OF COVARIANCE STUDY

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ABSTRACT

There has been limited prior research into generational differences among family businesses. This study primarily compared first, second and third-generation family firms. However, it used an advanced research design by including four control variables to examine the effects of family business characteristics and management practices on generation. Control variables included number of employees, years in business, type of business, and form of ownership. The first analysis focused on if there were significant differences in the 11 dependent variables by generation, with the effects of the four control variables. ANCOVA was run for each hypothesis. There were significant differences in succession planning, degree of influence by founder, and use of debt or equity financing. Results also found the number of employees did have a significant covariance with the percentage of non-family managers and financial management methods used by generation. The number of years in business had a significant covariance with succession planning and degree of influence by original business objective and methods of the founder. Form of ownership had a significant covariance with team decisions, conflict, and strategic management. Industry also had a covariance with succession planning and financial methods used.

INTRODUCTION

An estimated 80% of the total businesses within the American economy are family businesses (Carsrud 1994; Kets de Vries, 1993). Family businesses contribute more than 50% (McCann, Leon-Guerrero, & Haley 1997) to as high as 60% (Bellet, Dunn, Heck, Parady, Powell, & Upton 1995) of the total Gross National Product, 50% of employment (Morris, Williams, Allen & Avila 1997), and have higher annual sales than non-family businesses (Chaganti & Schneer 1994). Estimates classify 35% of *Fortune 500* firms as family owned (Carsrud 1994). Thus, family businesses constitute an important segment of the American economy. However, much of the family business literature is non-quantitative (Dyer & Sánchez 1998; Litz 1997).

This study adds to the quantitative empirical body of family business literature, and furthermore investigates an especially limited segment of the literature, the study of similarities and differences among first, second and third-generation family businesses, as was suggested for further research by Morris, Williams, Allen & Avila. (1997). It also used advance multivariate statistics, as Sonfield and Lussier (2002) suggested for further research. A better understanding of these

similarities and differences and the affects of the control variables might enable family firm researchers to better focus their future investigations into these three generational categories as separate entities, might strengthen the effectiveness of advisors, consultants, and others who assist family firms by allowing them to differentiate, as needed, between their first, second and third-generation family business clients, and also might assist family business owner/managers in their understanding and self-analyses of their businesses.

THEORETICAL FOUNDATION

It should be noted that, even with this maturization of the field, a variety of definitions of "family business" continue to serve as the basis for the research and articles within this body of literature (Littunen & Hyrsky, 2000). For the purposes of this study, a family business is one in which family members dominate the ownership and management of a firm, and perceive their business as a "family business." Furthermore, this research study recognizes all first-generation family firms as included in the definition. This definition is consistent with that of many prior studies (Dreux & Brown, 1999; Gersick, Davis, Hampton & Lansberg, 1997; Litz, 1995).

While a body of research into family businesses has been established, a focus on *generations* has generally been relegated to a secondary or peripheral focus in past studies. As family firms move beyond the first generation of family member ownership and involvement in management, do changes occur? If family firms involve a *system* of the family, the individual family members, and the business unit, how do generational changes in the system components impact each other? Are there significant differences between First-Generation Family Firms (1GFFs), Second-Generation Family Firms (2GFFs) and Third-Generation Family Firms (3GFFs)? For this research, a 1GFF is defined as a family-owned and managed firm, with more than one family member involved, but only of the first and founding generation of the family. A 2GFF and a 3GFF are defined as firms in which the second or third generations of the family are also involved in the ownership and the management of the company. In a 2GFF or 3GFF, the original founder(s) and/or other members of earlier generations may be retired from the firm or deceased; thus not all (two or three) generations need be currently participating. This working definition is consistent with previous studies that dealt with generational issues in family firms (Beckhard & Dyer, 1983; Davis & Harveston, 1999; Dyer, 1988; Hershon, 1975; Schein, 1983), and with definitional issues (Handler, 1989; Kelly, Athanassiou & Crittenden, 2000). Although the existing literature suggests a variety of possible differences between first-generation and subsequent-generation family firms, most studies' examinations of generational issues were only a small or tangential part of a larger focus on other or broader family firm issues.

Some prior studies of family business have investigated developmental issues or the *stages* of the evolution of family business growth. For example, Gersick et al (1997) present a developmental model of four typical stages in the growth of a family business, with significant analysis of the characteristics of the firm in each stage, and the implications regarding effective management in each stage. Others, such as Peiser and Wooten (1983), focus on the *life cycle* changes in family businesses. While this *developmental* focus is important, the authors admit to the complexity of this focus and the resulting models. In contrast, it is proposed that a *generational*

focus is a less complex way to measure the development of a family business, and thus theory and future models based on *generations* will be easier to use, especially for family business owner/managers and many of the consultants who assist such firms.

This research project's objective was to examine 1GFFs, 2GFFs and 3GFFs in a multi-factor and multi-dimensional analysis, building upon the more limited-focused hypotheses, propositions and findings of previous researchers, and also to expand the empirical body of family business research. As discussed below, the existing literature occasionally specifically compares first-generation versus subsequent generation family firms, but very rarely differentiates between second, third or further generations. This study extends this limited theoretical analysis further. If a 2GFF may differ from a 1GFF, then does a 3GFF differ from a 2GFF in the same manner and to a further degree?

The hypotheses, which follow, derive from specific references in the family business literature to generations (1GFFs versus 2GFFs, and occasionally 3GFFs) and proposed similarities and differences between them.

HYPOTHESES

Note that these 11 hypotheses were developed and published in the *Proceedings of the National Entrepreneurship & Small Business Educators Conference* by Sonfield and Lussier (2002) and were tested using simple bivariate analysis of variance (ANOVA). This study tests the same hypotheses using advanced multivariate analysis of covariance (ANCOVA) to determine the affects of the control variables: number of employees, years in business, type of business, and form of ownership. A panel of experts reviewed the questionnaire for improvements in measuring these hypotheses, addressing reliability and validity.

In a study by Dyer (1988), it was found that 80% of 1GFFs had a "paternalistic" management culture and style, but that in following generations more than two-thirds of these firms adapted a "professional" style of management. "Paternalistic" management was characterized by hierarchical relationships, top management control of power and authority, close supervision, and distrust of outsiders. "Professional" management involves the inclusion, and sometimes the predominance, of non-family managers in the firm.

Similarly, McConaughy and Phillips (1999), studying large publicly owned founding-family-controlled companies, concluded that descendent-controlled firms were more professionally run than were founder-controlled firms. These writers suggest that first-generation family managers are entrepreneurs with the special technical or business backgrounds necessary for the creation of the business, but the founder's descendents face different challenges - to maintain and enhance the business - and these tasks may be better performed in a more professional manner, often by non-family members. Both Dyer (1988) and McConaughy and Phillips (1999) found an earlier basis in Schein (1983), who also suggested that subsequent generations in family firms tend to utilize more professional forms of management.

An argument can be made that the size of a family business grows in subsequent generations, and that it is the *size* factor, rather than the *generation* factor that influences the level of "professionalism" in the management of a family firm (and similarly influences many of the other

factors dealt with in the following hypotheses). Clearly, as this and other studies show, the size of a family business tends to expand with subsequent generations.

Therefore, the above research findings lead to:

Hypothesis 1. Subsequent-Generation Family Firms are more likely than First-Generation Family Firms to include non-family members within top management.

(For this and the following hypotheses, this phrasing means that 3GFFs are more likely than 2GFFs, and 2GFFs are more likely than 1GFFs.)

Nelton (1998) studied gender issues in family firms, and observed that daughters and wives are rising to leadership positions in family firms more frequently than in the past, and that the occurrence of daughters taking over businesses in traditionally male-dominated industries is increasing rapidly. Similarly, focusing on societal trends rather than family firm generational issues, Cole (1997) found the number of women in family businesses increasing. On a broader level, U.S. Census Bureau data showed women-owned firms growing more rapidly than those owned by men (Office of Advocacy, 2001). While it might be argued that these societal trends would impact family businesses equally at all generational levels, Nelton's focus on daughters and succession more strongly relates to the focus of this study. Therefore:

Hypothesis 2. Subsequent-Generation Family Firms are more likely than First-Generation Family Firms to have women family members working in the firm.

Another focus of family business research has been the distribution of decision-making authority in the firm. As previously discussed, Dyer (1988) found decision-making to be more centralized in first-generation family firms than in subsequent-generation family firms. This was developed further by Aronoff (1998), who found that subsequent-generation family firms are more likely to engage in team management, with parents, children and siblings in the firm all having equality and participative involvement in important decision-making, even if one family member is still the nominal leader of the business. Aronoff furthermore reported that 42% of family businesses are considering co-presidents for the next generation. This leads to:

Hypothesis 3. Subsequent-Generation Family Firms are more likely than First-Generation Family Firms to use a "team-management" style of management.

Interpersonal dynamics, including conflict and disagreement among family members, has been a major focus of family firm research. Within first-generation family firms, conflict can exist, when siblings, spouses or other relatives participate in management and/or ownership, and conflict can also arise between members of different generations in subsequent-generation family firms. Beckhard and Dyer (1983) found that conflict among family members increases with the number of generations involved in the firm. Conversely, Davis and Harveston (1999, 2001) concluded that

family member conflict increased only moderately as firms moved into the second-generation stage, but there was a more sizable increase from second to third-generation. Therefore:

Hypothesis 4. Subsequent-Generation Family Firms are more likely than First-Generation Family Firms to have conflict and disagreement between family members.

Another major focus of the literature on family firms has been succession. The primary issues here involve the difficulties founders have in "letting go" and passing on the reins of control and authority, the lack of preparation for leadership next-generation family members often receive, and thus the need for, and importance of, succession planning (Davis, 1983; Handler, 1994; Upton & Heck, 1997). Dyer (1998) investigated "culture and continuity" in family firms, and the need for firm founders to understand the effects of a firm's culture and that culture can either constrain or facilitate successful family succession. Fiegener and Prince (1994) compared successor planning and development in family and non-family firms, and found that family firms favor more personal relationship-oriented forms of successor development, while non-family firms utilize more formal and task-oriented methods. Building upon these and other studies of succession in family firms, Stavrou (1998) developed a conceptual model to explain how next-generation family members are chosen for successor management positions. This model involves four factors which define the context for succession: *family*, *business*, *personal* and *market*.

Although these and other studies have dealt with various aspects of succession, none have specifically investigated succession planning and practices in first-generation versus subsequent-generation family firms. Given that the importance of succession has been well established and publicized, and that family firms often experience the trials of succession as they move from one generation to the next, it would be expected that subsequent-generation family firms are more likely to recognize the importance of succession than are first-generation family firms and respond accordingly. Therefore:

Hypothesis 5. Subsequent-Generation Family Firms are more likely than First-Generation Family Firms to have formulated specific succession plans.

It has been proposed by several researchers of family business that as such firm's age and/or move into subsequent-generation family management and ownership, they also progress from one style of management to another. Informal, subjective and paternalistic styles of leadership become more formal, objective and "professional" (Aronoff, 1998; Cole & Wolken, 1995; Coleman & Carsky, 1999; Dyer, 1988; Filbeck & Lee, 2000; McConaughy & Phillips, 1999; Miller, McLeod & Oh, 2001; Schein, 1983). "Professional" management may involve the following: (a) the use of outside consultants, advisors and professional services, (b) more time engaged in strategic management activities, and (c) the use of more sophisticated financial management tools. These prior research findings lead to several hypotheses:

Hypothesis 6. Subsequent-Generation Family Firms are more likely than First-Generation Family Firms to use outside consultants, advisors and professional services.

Hypothesis 7. Subsequent-Generation Family Firms spend more time engaging in strategic management activities than First-Generation Family Firms.

Hypothesis 8. Subsequent-Generation Family Firms are more likely than First-Generation Family Firms to use sophisticated methods of financial management.

Still another issue of interest in the investigation of family business is "generational shadow" (Davis & Harveston, 1999). In a multi-generation family firm a generational shadow, shed by the founder, may be cast over the organization and the critical processes within it. In such a situation, "succession" is considered incomplete, may constrain successors, and may have dysfunctional effects on the performance of the firm. Yet this "shadow" may also have positive impact, by providing a clear set of values, direction and standards for subsequent firm managers. Kelly, Athanassiou and Crittenden (2000) similarly proposed that a family firm founder's "legacy centrality" will influence the strategic behavior of succeeding generations' family member managers, with both positive and negative impact. Davis and Harveston (1999) also investigated generational shadow, but reached mixed conclusions regarding its impacts. If "generational shadow" and "legacy centrality" are valid components of the family business system, then management in both first-generation family firms (with the founder in control) and in subsequent-generation family firms (with the founder having strong presence even if not actually there) should be influenced by the objectives and methods of the founder:

Hypothesis 9. Top management styles and decisions in Subsequent-Generation Family Firms are neither more nor less likely than in First-Generation Family Firms to be influenced by the original business objectives and methods of the founder.

While most family businesses are privately owned, many are not. As family firms grow and/or as they move into subsequent generational involvement, opportunities and needs for "going public" may arise. The family may not be able, or may not choose, to provide sufficient management or financial resources for growth, and outsider ownership can resolve this situation. And even publicly owned companies can continue as "family businesses," if management or financial control is maintained by the family. McConaughy (1994) found that 20% of the Business Week 1000 firms are family-controlled. Thus:

Hypothesis 10. Subsequent-Generation Family Firms are more likely than First-Generation Family Firms to have considered "going public."

Capital financing is a central issue for family businesses (Romano, Tanewski, & Smyrnios, 2001). It follows from the preceding discussion that subsequent-generation family firms may use equity financing rather than debt financing, as they grow through the sale of company stock. Cole and Wolken (1995) and Coleman and Carsky (1999) found that older and larger family firms use more equity financing and less debt financing than younger and smaller family firms.

However, other researchers have found that family businesses, and especially first-generation ones, are reluctant to use debt financing (Bork, Jaffe, Jane, Dashew & Heisler, 1996; Gersick et al., 1997). Therefore, with the literature pointing in both directions:

Hypothesis 11. Subsequent-Generation Family Firms are neither more nor less likely than First-Generation Family Firms to use equity financing rather than debt financing.

METHODOLOGY

As in the Sonfield and Lussier (2002) study, the research design was survey research, the most commonly used methodology of family business research (Bird, Welsch, Astrachan & Pistrui 2002).

Sample

Survey instruments were randomly mailed to a variety of New York and Massachusetts companies, which had been identified as family firms (on listings of "family businesses" in local business newspapers). These surveys were addressed to the presidents or CEOs of these companies, with the instruction that the addressee complete the survey, but only if they were an "owner/manager" and if they viewed their firm as a "family business." There were 822 surveys mailed or delivered; of these 272 were no longer at the address or responded that they were not family firms. (The survey instrument included the question: "Do you consider your company to be a family business?" and the cover letter defined "family members" as parents, children, siblings, spouses, and other close relatives.) A total of 149 usable returned surveys provided a return rate of 27.1%. To increase the sample size and to test for non-response bias, after a few months a follow-up request for surveys was taken using hand-delivered and telephone surveys, and 12 more questionnaires were returned and used for a total of 161. This is a large sample size for family business, as 62% of prior studies included no sample or a sample with less than 100 family businesses, and 66% are convenience samples (Bird, et al. 2002).

Variables Measured

The dependent variables to test Hypotheses 1-11 were as follows. (1) Does the firm have non-family managers?-the percentage of family to non-family managers. (2) The percentage of male and female family members involved in the operation of the firm. Hypotheses 3-10 were Likert interval scales of:

"Describes our firm 7 6 5 4 3 2 1 Does not describe our firm." (3) full family involvement in decisions, (4) level of family conflict, (5) formulation of succession plans, (6) use of outside advisors, (7) long-range thinking, (8) sophisticated financial management tools, (9) influence of founder, and (10) going public. (11) The primary use of debt or equity financing was a nominal

measure of one or the other. Descriptive statistical data included number of years the firm was in business, the number of employees, industry (product or service), and form of ownership.

Control Variable Analysis of Covariance

A covariance explains how one variable changes in relation to another. Analysis of covariance (ANCOVA) was used to test for a spurious relationship, i.e. the variance in the dependent variables being explained by another variable other than generation. In other words, this is a test to make sure that the relationship between the 11 dependent variables by generation is nonspurious. In order to control for firm size, age, type of business, and form of ownership, ANCOVAs were run for each hypothesis. The 11 dependent variables and generations remained in the model with the addition of the nominal data type of business and form of ownership added as independent variables, and ratio data size and age of the firm were the covariates.

Discriminant Analysis

In addition, discriminant analysis was run with variables being reversed. The 11 dependent variables were used as independent variables to determine if they could predict the dependent variable generation. The descriptive statistical data was also tested for differences among generations.

RESULTS

Descriptive Statistics

Of the sample of 161, the number of first generation firms was 51 (32%), second generation 60 (37%), and three or more generations 50 (31%). A one-way chi-square indicated that the sample size by generation is not significant ($p = .730$); 1GFFs, 2GFFs and 3GFFs are equally represented in the sample.

The mean years the sample family firms were in business were 40 with a s.d. of 24 (1GFFs = 13, 2GFFs = 34, 3GFFs = 67). As can be expected, the more generations, the longer the firm has been in business. The mean number of employees was 201 with a s.d. of 674 due to outliners (1GFFs = 51, 2GFFs = 228, 3GFFs = 310). As may be expected, the longer a firm is in business, the larger it becomes.

As in the population, more businesses (119 or 74%) provided a service (including retail) than manufactured a product (38 or 26%). More firm ownership was in the form of corporation (118 or 73%), followed by sole proprietorship (26 or 16%), and partnership (17 or 11%). There was a significant difference between generations by form of ownership ($p = .008$). 1GFFs were less likely to be corporations (27 or 53%) than 2GFFs (47 or 78%) and 3GFFs (44 or 88%). More 1GFFs were

sole proprietorships (16 or 31%) than were 2GFFS (7 or 12%) and 3GFFs (3 or 6%). More 1GFFs were also partnerships (8 or 16%) than were 2GFFs (6 or 10%) and 3GFFs (3 or 6%).

Because it is to be expected that 1GFFs, 2GFFs and 3GFFs will differ in many ways (years in business, number of employees, and form of ownership), the total sample was controlled for three other factors: all the surveyed firms (regardless of generation) were family businesses, the owner/manager company president or CEO completed the survey, and there were no significant generational differences with regard to type of business (service versus manufacturing) ($p = .331$). As discussed above and below with the results, ANCOVA was also run to control these variables. Thus, the sample was controlled in multiple ways and should reflect the family firm population by generation.

Non-response Bias

To address non-response bias, a follow-up taken several months later resulted in 12 more completed questionnaires. The responses of these follow-up respondents, who were assumed non-respondents, were compared to the original respondents. There were no significant differences in early and late respondents. Thus, the sample was controlled in multiple ways and should reflect the family firm population by generation.

Hypotheses ANCOVA Testing

The first analysis focused on if there were significant differences in the 11 dependent variables by generation (1GFF, 2GFF, 3GFF), with the effects of the four control variables: number of employees, years in business, type of business, and form of ownership. ANCOVA was run for each hypothesis. There were significant differences in H5 succession planning ($p = .000$), H9 degree of influence by founder ($p = .021$), and H11 use of debt or equity financing ($p = .004$). 2GFFs and 3GFFs did significantly more succession planning than 1GFFs. The influence of the founder was greater in 1GFFs and 2GFFs than in 3GFFs. 1GFFs made greater use of equity financing than 2GFFs and 3GFFs.

Based on the literature, only one hypothesis was accepted. It was expected that (H5) 2GFFs and 3GFFs make more specific succession plans. Two hypotheses were rejected in contradictions to the literature: no differences in (H9) founder influence and (H11) the use of debt vs. equity were hypothesized, yet there were significant differences. Hypotheses 1, 2, 3, 4, 6, 7, 8, and 10 were all rejected as the literature supported differences by generations, yet the differences were not significant. See Table 1 for the means by generation and the significance level for generation and for the significant covariances for control variables.

The second analysis focused on the affects of the four control variables on generation. The control variables had no effect on four of the eleven hypotheses: H2 percentage of women, H6 use of outside advice, H10 going public, and H11 debt to equity. The covariances are presented in Table 1 and discussed below, and all of these covariance are logical and were expected.

The number of employees did have a significant covariance with H1 the percentage of non-family managers ($p = .007$) and H8 financial management ($p = .000$). The greater the number

of employees, the greater the percentage of non-family managers. Also, the greater the number of employees, the greater the use of sophisticated financial management techniques. Larger businesses typically make greater use of non-family managers and sophisticated methods.

Table 1: ANCOVA Hypotheses Comparison by Generation (N = 161)

	Generation				Controls

Hypotheses (Control variables:
#E = # of employees
YB = years in business
FO = form of ownership
I = industry-product or service)
	1GFF (n=51)	2GFF (n=60)	3GFF (n=50)	p Gen	Sig p
					#E
					YB
					FO
					I

1. Use of non-family members within top mgt (% non-family)	29	30	35	.242	#E .007
2. Women family members working in firm (% of women)	36	26	28	.468	
3. Use of team-management style (7-1*)	3.47	4.32	3.79	.462	FO .010
4. Having conflict between family members (7-1)	2.40	2.67	2.28	.468	FO .015
5. Specific succession plans (7-1)	1.70	3.73	3.19	.000	YB .000 I .047
6. Use of outside consultants, advisors, and professional services (7-1)	3.63	4.38	4.57	.495	
7. Time spent in strategic mgt activity (7-1)	3.13	3.28	3.23	.866	FO .040
8. Use of sophisticated methods of financial mgt (7-1)	2.94	3.79	3.21	.476	#E .000 I .038
9. Degree of influence by original business objective and methods of the founder (7-1)	5.06	5.34	4.52	.021	YB .000
10. Consideration of going public (7-1)	1.33	1.49	1.27	.929	
11. Use of equity financing rather than debt (proportion)	61/39	12/88	33/67	.004	
* Likert scales-Mean of Describes our firm 7 6 5 4 3 2 1 Does not describe our firm.					

The number of years in business did have a significant covariance with H5 succession planning (p = .000) and H9 degree of influence by original business objective and methods of the founder. The greater the number of years in business, the greater the likelihood of having succession plans; this was also supported by later generations having greater use of succession planning. The longer the firm has been in business, the less influence the original founder has.

Form of ownership had a significant covariance with H3 team decisions (p = .010), H4 conflict (p = .015), and H7 strategic management (p = .040). Corporate and partnership owners tend to have multiple owners to share the decisions and to have conflicts with. Corporate ownership of business tends to be more professional, and thus is more likely to spend more time than sole proprietors and partners on strategic management.

Industry type also had a covariance with H5 succession planning (p = .000) and H8 financial management (p = .038). Manufacturers of products made greater use of succession planning and typically have greater capital investments than service providers and have greater need of sophisticated methods of financial management.

Discriminant Analysis Testing

The results of the discriminant analysis also indicated a lack of differences between generations, as the hypotheses variables could not accurately predict generation (p = .186) as a model. The accuracy rate of discriminating among generations was 60%.

DISCUSSION

In this ANCOVA study, there were significant differences by generation in succession planning, degree of influence by founder, and use of debt or equity financing. These results vary slightly from the Sonfield and Lussier (2002) ANOVA study without the four control variables, which also found differences in succession plans and use of debt to equity financing. However, without the control variables, Sonfield and Lussier did not find differences in influence of founders. Thus, much of the existing literature regarding possible generational differences among family firms is not supported by this current research study. In contrast to the findings of many prior studies, 1GFFs, 2GFFs and 3GFFs share the same characteristics and behavior patterns. It would seem that the system of the family firm, and the force of "familiness," are stronger, even in subsequent generations, than is the influence of "mainstream" non-family-firm forms of management thinking and behavior. Thus, the findings of this study do not support the previous conclusions of Aronoff (1998), Beckhard and Dyer (1983), Cole and Wolken (1995), Coleman and Carsky (1999), Davis and Harveston (1999, 2001), Dyer (1988), Filbeck and Lee (2000), McConaughy and Phillips (1999), Miller, McLeod and Oh (2001), and Schein (1983), all of whom postulated generational differences among family businesses. (See the earlier Hypotheses section for a detailed discussion.)

This study found that "generational shadow" and "legacy centrality" decreased with the family firm's years in business. Since years in business and number of generations obviously are related, then these findings do not support the findings of Kelly, Athanassiou and Crittenden (2000), as discussed earlier, and are more in agreement with the mixed conclusions of Davis and Harveston (1999).

Also, this study determined that succession planning increased both with generations and with the family firm's years in business. Here too we can relate years in business to number of generations and then compare this finding to the literature discussed in the Hypotheses section. As discussed, while there has been considerable investigation of succession planning in family

businesses, prior studies (Davis, 1983; Fiegener & Prince, 1994; Handler, 1994; Stavrou, 1998; Upton & Heck, 1997) have not examined this issue with regard to first- versus subsequent generations. Thus, this study sheds some new light on this subject.

With regard to the use of debt versus equity funding, it has been noted that the literature provides mixed positions. The results of this research indicated that while 40% of 1GFFs used equity funding more than debt funding, only 11% of 2GFFs did, and 33% of 3GFFs did. At the same time, as years in business increased, the use of debt financing versus equity financing increased. That 1GFFs and younger firms use the least proportion of debt financing might support Bork et al. (1996) and Gersick et al. (1997). However, the greater use of equity financing by 3GFFs than by 2GFFs, and the positive relationship between firm age and the use of debt financing, could be seen as in support of Cole and Wolken (1995) and Coleman and Carsky (1999), as discussed earlier. Clearly, the results with regard to this issue are mixed here, and further research on generational issues and debt versus equity financing is needed.

CONCLUSIONS

In most prior studies of family business, examinations of generational issues were only a small or tangential part of a larger focus on other or broader issues. Therefore, this study's hypotheses were based on limited prior research findings. This lack of a strong existing empirical-based research literature is a limitation to this study, but it also increases the importance of this study's empirical methodology and its findings. Clearly, these current findings indicate a need for more focused and more extensive analysis of similarities and differences among first, second and third-generation family firms, and their managerial implications. Such research might also clarify both the differences and overlaps between issues of family firm generations versus stages, and the advantages and disadvantages of each of these focuses and their respective potential resultant theories and models.

This issue of generational similarities and differences is worthy of continued investigation because both those who research and those who assist family firms need to know whether it is necessary and/or valuable to differentiate between generational categories within the total population of such firms. If there are significant differences, do they in turn require that different forms of assistance will be most effective for first-generation versus second-generation versus third-generation family firms?

Furthermore, a better understanding of the value of generational categorizations of family businesses might be of benefit to the owner/managers of such businesses. Although it may be difficult for an owner/manager to identify the developmental stage of his or her family firm, or to analyze his or her company with regard to some of the other issues raised in the academic literature in family business, an owner/manager can certainly categorize his or her business by generation. If future research efforts result in a significant body of theory and managerial implications based on generations, then this might enable family business owner/managers to make better operational and strategic decisions, especially when the intervention of professional assistance is not available.

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END OF VOLUME 10, NUMBER 1

BEGINNING OF VOLUME 10, NUMBER 2

ARTICLES FOR VOLUME 10, NUMBER 2

EXPLORING THE FINANCIAL PERFORMANCE IMPACTS OF TWO DIMENSIONS OF CORPORATE ENTREPRENEURSHIP

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ABSTRACT

This study explores the effects risk permissiveness and strategic planning flexibility, as two of the dimensions of corporate entrepreneurship, on the financial performance of small firms in lower and higher levels of market dynamism. Analysis results of data collected from Turkish machine and equipment manufacturing industry reveal that market dynamism increases top managers' tolerance for employees' risk taking behavior which in return increases firm's financial performance in dynamic markets. As for the strategic planning flexibility, it is found to be - although slightly- an antecedent of financial performance, but not a consequence of market dynamism. However, the effect size of strategic planning flexibility on performance increases in dynamic markets. Theoretical and managerial implications are provided.

INTRODUCTION

In today's competitive markets, the speed of change is so rapid that nothing is stable but the change itself. New versions of production and office technologies, new methods of management and marketing, new tendencies and fashions in the market demand, and new economical and political developments turn the regional and global markets day by day into more dynamic arenas of competition. This dynamism forces corporate strategists either (1) to develop new approaches to deal with the environmental uncertainty that indeed brings at the same time both opportunities and threats, or (2) to follow the strategy of "wait and see", with a strong commitment to the status quo, believing in the enduring correctness of current organizational strategies and profiles (e.g. Covin & Slevin, 1991; Hambrick, 1983). The latter passive approach represents the tendency of risk avoidance without revising the strategies and renewing the organization, while the first proactive approach is more tolerant for organizational and strategic change, that necessitates risk taking and flexibility; which is labeled also as corporate entrepreneurship (Zahra, Neubaum & Huse, 2000).

Many researchers advocate the approach of corporate entrepreneurship as a facilitator for strategic management practices (e.g. Covin & Slevin, 1991; Zahra, 1991) and a necessity for the organizational survival especially in times of environmental uncertainty (Zahra, 1996). However most of the literature on the corporate entrepreneurship-performance relationship has been conducted on large scale western firms, assuming that small firms in general are already lean enough to be more entrepreneurial in strategic orientation. Therefore, the exploration of the variance in the

level of entrepreneurship and its possible effects on the performance of small manufacturing firms with a set of data collected from an emerging market, i.e. Turkey seems to be an interesting theme of research. In this study, we therefore investigate (1) the direct performance impacts of two dimensions of corporate entrepreneurship namely (a) the level of risk permissiveness and (b) the level of strategic planning flexibility, and (2) the effects of the level of market dynamism to these relationships.

The paper proceeds in the following order; firstly, we review the literature on the descriptions and performance impacts of flexibility and risk taking in dynamic markets, then we explain our research method and expose our findings, and finally we conclude by providing managerial suggestions and research implications.

CORPORATE ENTREPRENEURSHIP, MARKET DYNAMISM AND FIRM PERFORMANCE

Webster (1988) suggests researchers to conduct rigorous empirical research to develop viable strategic solutions as how SMEs can achieve superior performance in highly volatile environmental conditions. Following this suggestion, many researchers agree on the significance of adopting and developing such organizational capabilities or orientations that can be labeled as adaptability or the ability to adjust (e.g. Beal, 2000). More specifically, among the most prominent factors proposed as facilitating SME performance is the corporate entrepreneurship (e.g. Zahra, Neubaum & Huse, 2000).

Corporate entrepreneurship as a firm level phenomenon can be defined as a firm's orientation to be more proactive, innovative and risk taking (Barringer & Bluedorn, 1999), and a dynamic capability to reconfigure internal and external competencies to address rapidly changing environments (Teece, Pisano & Shuen, 1997) ending up with new business venturing (Kuratko, Montagno & Hornsby, 1990) and organizational self renewal (Sathe, 1989). Therefore, as Covin and Miles (1999) put it, entrepreneurial firms continuously develop new strategies and structures.

Ruefli, Collins and Lacugna (1999) suggest that risk taking is an essential element of strategic management; and also according to Zahra (1993) employees' risk taking behavior is a very relevant aspect of corporate entrepreneurship. Lumpkin and Dess (2001) defines it as a tendency to take bold actions such as venturing into unknown new markets, committing a large portion of resources to ventures with uncertain outcomes, and/or borrowing heavily. Therefore, encouraged to pursue opportunities by developing innovative and proactive ideas, employees are welcomed to take risks as the intrapreneurs in an entrepreneurial corporation. Here, the level of risk taking by employees shows the level of commitment of firm resources to market's new opportunities - rather than to status quo - but still with an equal change of costly failure (Liu, Luo & Shi, 2002) and naturally with the strong belief that the decision of taking this risk is reasonable - not a gamble - (Bhuian, Menguc & Bell, 2003). Thus allowing employees to take risk i.e. risk permissiveness is an important characteristic of the entrepreneurial firms.

A firm's ability to adjust its strategies to the rapidly changing marketplace conditions is another concept highly related to corporate entrepreneurship (e.g. Barringer & Bluedorn, 1999; Kemelgor, 2002). According to Kukalis (1991), the antecedents of flexibility in the strategic

planning system include short term planning and frequent reviews and revisions to adapt the unexpected environmental changes. Committed to be more proactive and innovative, strategists in entrepreneurial firms scan up-to-date information about market developments, and revise and renew existing strategic plans more frequently. On one hand, excessive focus on flexibility may have several downsides for larger firms, including increased costs, increased stress on employees, and a lack of organizational focus (Das & Elango, 1995). On the other hand, however, lack of flexibility in strategic planning is likely to deteriorate the ability of SMEs to adapt to environmental dynamism because of the inertia that is created by the "strict rules of action" included in the plan. Therefore we develop the following set of hypotheses:

H1:	The levels of risk permissiveness and strategic planning flexibility are positively related to each other.
H2:	The levels of (a) risk permissiveness and (b) strategic planning flexibility increase the firm's financial performance

Market dynamism appears, according to the strategic management literature, as an important moderator of firm performance, while it s not a direct facilitator of it, since it brings at the same time both opportunities and threats (e.g. Goll & Rasheed, 1997; Li & Simerly, 1998; Simerly & Li, 2000; Audretsch, Baumol & Burke, 2001). Dynamism that refers to frequent changes in technology, demand, competition etc. in the marketplace, forces firms to adopt such organizational characteristics that can best contribute to the managerial efforts for turning this challenge into a success. Past research suggests that in dynamic markets, the orientation of corporate entrepreneurship is seen as one of the key competitive advantages and more likely to be adopted with the expectation of higher performance (Thompson, 1999; Zahra 1991; Covin & Slevin, 1991). Therefore we develop the following set of hypotheses:

H3:	The level of market dynamism increases the levels of (a) risk permissiveness and (b) strategic planning flexibility.
H4:	In dynamic markets, the financial performance impacts of (a) risk permissiveness and (b) strategic planning flexibility are higher than in non-dynamic markets.

Following these hypotheses we can develop the theoretical model below.

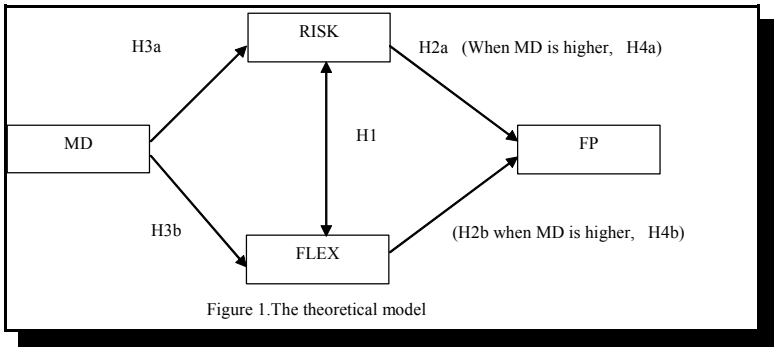

Figure 1.The theoretical model

RESEARCH METHODOLOGY

The data collection process was conducted via face-to-face interviews of top executives of small manufacturing firms in Turkey. The sampling frame for this study consists of 453 manufacturing firms in the Turkish machinery and equipments industry. Each one of these firms employs less than 500 employees. A top executive from each firm was first contacted via mail and/or phone in order to solicit their cooperation for the study. After a series of contact attempts, seventy-five firms agreed to participate in the study. Five of the completed questionnaires were eliminated because of missing data, however, resulting in an effective response rate of 15 percent. Tests for non-response bias were conducted by comparing the respondents who agreed to participate after our first contact with those who participated after multiple contact attempts. No significant differences were found in the construct means of the two groups, suggesting that non-response bias may not be a major problem in our sampling process.

The constructs in our study are measured using measurement scales adopted from prior studies. All constructs are measured using seven-point Likert type scales with anchors strongly disagree (=1) and strongly agree (=7). Items for measuring risk permissiveness are adopted from Birkinshaw, Hood and Johnsson (1998) using Kuratko, Montagno and Hornsby's (1990) entrepreneurial assessment index. The planning flexibility scale is adopted from Barringer and Bluedorn (1999). Similarly, selected items from Appiah-adu and Singh (1998) and Pelham and Wilson (1996) are used for measuring market dynamism. Finally, the questionnaire items for measuring financial performance are adopted from Barringer and Bluedorn (1999).

We used traditional techniques (i.e., exploratory factor analyses and coefficient alpha) to assess the psychometric properties of our measurement scales. We conducted factor analyses with varimax rotation. Consistent with our expectations, a four-factor solution was extracted as a result of this analysis, and items within each scale displayed high loadings on their respective factor. As shown in Table 1, each item has a factor loading well above 0.40, a common threshold for acceptance (Basilevsky, 1994). Because internal consistency of each scale was also demonstrated based on coefficient alpha estimates (cronbach's alphas= .69; .78; .80; and .91; respectively, for Risk Permissiveness, Planning Flexibility, Market Dynamism, and Firm Performance), we decided that the measurement scales used in the study are both unidimensional and adequately reliable. Measurement items and their factor loadings are displayed in the Table 1. The four factors obtained as a result of the exploratory factor analysis are adopted as the constructs of our study and employed in the correlation and regression analyses as the dependent and independent variables.

FINDINGS

We conducted descriptive analyses i.e. calculated means and standard deviations for the constructs formed as a result of the exploratory factor analysis. As displayed on Table 2, the mean score for strategic planning flexibility is the highest and that of the market dynamism the lowest among other variables. The same table shows also the one-to-one relations among them via Pearson correlation coefficients. Thus we can use these coefficients as the test results for some of our hypotheses that are based on one-to-one relations among some variables i.e. H1, H3a, and H3b.

Table 1. Results of Exploratory Factor Analyses				
Items	Factor 1	Factor 2	Factor 3	Factor 4
Risk Permissiveness				
Individual risk-takers are recognized whether successful or not.	.71			
There is encouragement for calculated risks.	.67			
Risk-taking is considered as a positive attribute.	.81			
Planning Flexibility				
Strategic plans are revised in case of…..				
The emergence of a new technology		.84		
Shifts in economic conditions		.91		
The market entry of new competition		.88		
Changes in government regulations		.85		
Market Dynamism				
Changes in customer needs			.80	
Constant changes in competitors' strategies/actions			.83	
Rate of change in technology			.80	
Financial Performance				
Return on Equity (ROE)				.72
Overall performance				.82
Return on Invest (ROI)				.82
Cash flow				.71
Eigenvalues	3.82	2.42	2.08	1.39
% Variance	27.30	17.35	14.90	9.94

The assertion that risk permissiveness and strategic planning flexibility are positively related to each other (H1) is confirmed since Pearson r is positive and significant. A similar support for the hypothesis (H3a) stating that the level of market dynamism would increase the level of risk permissiveness has been obtained. However, the same is not true for H3b claming that the level of market dynamism would increase strategic planning flexibility. In brief, we find that (1) the two dimensions of corporate entrepreneurship are positively related to each other (H1 supported), (2) the

level of market dynamism increases only one dimension of it i.e. level of risk permissiveness (H3a supported), (3) but not the other one i.e. the strategic planning flexibility (H3b rejected).

Table 2. Descriptive statistics and correlations

Variable	M	S.D.	1	2	3	4
Risk Permissiveness	4.81	1.16	1.000			
Planning flexibility	4.98	1.03	.28*	1.000		
Market dynamism	3.97	1.29	.30*	.06	1.000	
Performance	4.24	1.20	-.00	.26*	.06	1.000

N = 70 **p<0.01; *p<0.05

We tested the hypotheses about the firm performance (H2a, H2b, H4a, and H4b) by two linear regression models. Table 3 displays the analysis results for the first regression model where the firm performance is the dependent variable and the followings are independents, namely risk permissiveness, planning flexibility and market dynamism. It is seen that the only variable that has a significant impact on firm's financial performance is the strategic planning flexibility (H2b supported). Risk permissiveness (H2a rejected) and market dynamism are not linearly and significantly impacting on this performance.

Table 4 for the second regression model shows the test results of those hypotheses where the mean of the level of market dynamism is employed as the cutoff point for the performance impacts of risk permissiveness (H4a) and strategic planning flexibility (H4b). In order to test the impacts of these two dimensions of corporate entrepreneurship in dynamic and non dynamic markets, we divided the data set into two groups of responses concerning of the level of market dynamism, where the cut off point is accepted as the mean score of this variable which is found to be 3.97 out of a scale from 1 to 7. Accordingly we calculated the same regression model for the two separate data sub-sets.

Table 3. Performance Impacts of Risk Permissiveness, Planning Flexibility, Market Dynamism

Independent Variables	Model 1's Dependent Variable: Financial Performance	
	Std. B	t value
(1) Risk Permissiveness	-.08	-.56
(2) Planning flexibility	.29*	2.175
(3) Market dynamism	.05	.40
	R^2= .085 F = 1.712	

**P< .01 ; *p< .05

Table 4. Performance Impacts of Risk Permissiveness and Planning Flexibility in lower and higher levels of Market Dynamism				
Independent Variables	Model 2's Dependent Variable: Financial Performance			
	Market dynamism < 3.97		Market dynamism > 3.97	
	Std. B	t value	Std. B	t value
(1) Risk Permissiveness	-.28	-1.51	34*	2.01
(2) Planning flexibility	.32	1.69	.35*	2.07
	R^2= .125 F = 1.712		R^2= .285 F = 5.190**	
**P< .01 ; *p< .05				

It is found as a result of the second regression model that (1) when the market is non-dynamic, the firm performance is not enhanced by none of these two dimensions of entrepreneurship- and we can even see that the sign is negative for the performance impact of risk permissiveness in non dynamic markets, -although the effect size is not significant- and (2) when the market is dynamic, just the opposite is true. In other words both dimensions of corporate entrepreneurship are contributing to firm performance in dynamic markets. We conclude that market dynamism is a facilitator for the performance impacts of both risk permissiveness (H4a supported) and strategic planning flexibility (H4b supported).

Table 5. Summary of the Hypothesis Test Results.		
No.	Assertion	Result
H1:	risk permissiveness and strategic planning flexibility are positively related to each other.	supported
H2a:	risk permissiveness increases the firm performance	rejected
H2b:	strategic planning flexibility increases the firm performance	supported
H3a:	market dynamism increases risk permissiveness.	supported
H3b	market dynamism increases strategic planning flexibility.	rejected
H4a:	In dynamic markets, the performance impact of risk permissiveness is higher than in non-dynamic markets.	supported
H4b:	In dynamic markets, the performance impact of strategic planning flexibility is higher than in non-dynamic markets.	supported

Following the findings of our study we can employ the empirical model below to display the supported relationships among our variables:

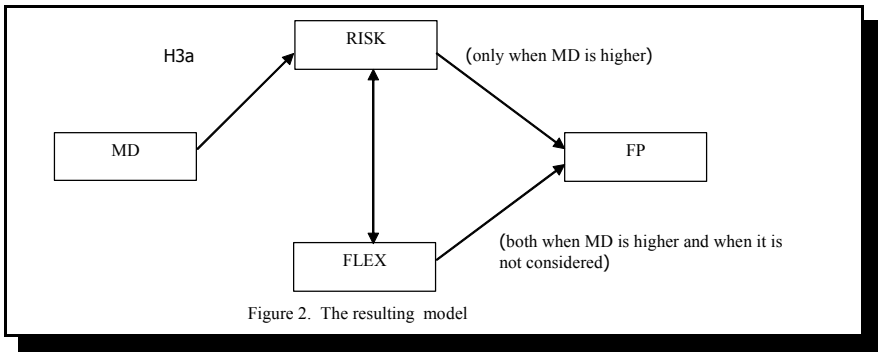

Figure 2. The resulting model

CONCLUSION AND DISCUSSION

In this empirical study, we aimed to explore the relationships between two dimensions of corporate entrepreneurship and financial performance in SMEs, and the facilitator role of market dynamism. As a result of this study, we obtained the following findings which do not only confirm the past research (e.g. Barringer & Bluedorn, 1999; Kemelgor, 2001) but also provide some original implications:

- Risk permissiveness as one of the dimensions of corporate entrepreneurship is positively related to the other dimension, strategic planning flexibility.
- Strategic planning flexibility has a slight positive impact on firm's financial performance.
- Risk permissiveness does not have a positive impact on financial performance; moreover, in case of non-dynamic markets, it has even a negative performance impact, but without a statistical significance.
- Market dynamism increases not only the level of risk permissiveness, but also turns this insignificantly negative performance impact of the latter to a significantly positive and stronger one.
- Market dynamism is not an antecedent for strategic planning flexibility, but a facilitator for the latter's performance impact which is insignificant in non-dynamic markets, and significant but smaller when the level of market dynamism is not taken into consideration.

Following these findings we can provide some managerial implications for not only small firm managers and but also those of the larger firms having a strong entrepreneurial orientation, which is summarized in Figure 1:

- The level of market dynamism and changes in technologies, market demand, and competitors' strategies should be continuously scanned.
- If the market is highly dynamic, the employees should be encouraged to act as intrapreneurs and take risks.
- If the market is not dynamic, this permit for risk taking should be avoided.
- Whether high or low, market dynamism does not affect the level of planning flexibility which is already high in entrepreneurial companies; but in dynamic markets, this flexibility should be increased.

	DYNAMISM	
	Low	High
RISK TAKING	Be risk averse	Allow and encourage risk taking
STRATEGIC PLANNING	Plan flexibly	Plan more flexibly

Figure 3. Managerial implications for higher financial performance

In this study, we have some important limitations which may provide new avenues for further research, if surpassed:

- We focused only on financial performance, while antecedents of market performance, e.g. qualitative performance, innovative performance etc. can be explored as the performance indicators.
- We made use of only two dimensions of corporate entrepreneurship, while others e.g. competitive aggressiveness, proactiveness, innovativeness etc. may be taken into consideration as the possible performance drivers.
- We collected data only from a limited number of small manufacturing firms' top executives, while multiple informants from within both small and large companies operating in various business sectors may be tried to be contacted.

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ABSORPTIVE CAPACITY AS AN ENABLER OF NEW ENTRY FREQUENCY AND SUCCESS

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ABSTRACT

This study describes linkages between absorptive capacity and entrepreneurial behavior. Combining multiple case-based and quantitative, longitudinal methodologies, the study finds that effective organizational communications and greater opportunities for experiential learning are associated with enhanced organizational level absorptive capacity, defined as the ability of a firm to perceive, acquire, and utilize new information and new learning. Absorptive capacity was found in turn to be associated with greater frequency and greater success at new entry. The results of the study are consistent with the view of the firm as a collection of knowledge-based resources that provide the flexibility and adaptability that enable firms to successfully enter and profit from new market opportunities.

INTRODUCTION

Research on the performance of entrepreneurial organizations frequently focuses on the characteristics of entrepreneur (Lumpkin & Dess, 1996; Covin & Slevin, 1991; Stevenson & Jarillo, 1990). The focus here is on elements of organizational context within small, entrepreneurial firms. Treating entrepreneurship as firm level phenomena focuses managers and researchers alike on the capabilities and resources that enable firms, through risk, proactivity, and innovation, to implement the "fresh value-creating strategies" (Eisenhardt & Martin, 2000: 1105) characteristic of entrepreneurship (Lumpkin & Dess, 1996; Covin & Slevin, 1991). This approach rests on the premise that in many 'entrepreneurial' organizations an entrepreneurial orientation and new entry depend on the capabilities within the firm apart from those of the principal (Lumpkin & Dess, 1996; Burgelman, 1984). Successful strategy "is not all, or only, about the cognitive ability of the senior management and their ability to make the right decisions" but about the firm's capability to work creatively with the material that is presented to it (Cockburn, Henderson & Stern, 2000: 1128).

The hypotheses are based on the concept of absorptive capacity, the ability of an organization to perceive, acquire, and utilize new information, learning, and skills (Cohen & Levinthal, 1990) and its relationship to organizational learning and entrepreneurial performance (Zahra & George, 2002; Van den Bosch, Volberda, de Boer, 1999; Cohen & Levinthal, 1990; Stephenson & Jarillo, 1990). While it is true that both entrepreneur and the organization contribute to the success of the firm, research emphasizing the individual entrepreneur has uncovered few characteristics that consistently predict success (Covin & Slevin, 1991). Inquiry at the level of the firm may uncover relationships and properties with more predictive ability than idiosyncratic factors such as locus of control (Miller & Toulouse, 1986) or need for achievement (Johnson, 1990). Processes and routines within

organizations may be more critical and more enduring than characteristics of the entrepreneur (Lumpkin & Dess, 1996). Seeing the small organization as more than a shadow of the entrepreneur, this study will identify and explore conditions within the firm itself that may contribute to the creation of successful entrepreneurial behavior.

BACKGROUND

Organizational learning focuses on two broad domains: first order learning that seeks routine and increasing efficiency, and second order learning that seeks increased flexibility. "A critical challenge facing organizations' is the dilemma of maintaining the capabilities of both efficiency and flexibility" (Lant & Mezias, 1992: 47). Both are required. Lacking first order learning firms fail to develop the routines that enable them to fully exploit the environment. Absent second order learning, firms will fail to explore alternative technologies, opportunities, and markets, actions that critical to new entry, the defining entrepreneurial behavior (Lumpkin & Dess, 1996). "The basic problem confronting an organization is to engage in sufficient exploitation to ensure its current viability, and, at the same time, to devote enough energy to exploration to ensure its future viability" (Levinthal & March, 1993: 105).

Can the organization balance the two? Different approaches to the study of organizations offer different answers. Life cycle models propose that organizations may sequence the two forms of learning across time. However, empirical support for life cycle models has been modest (Drazin & Kazanjian, 1990). Few firms seem to pass through the discrete, identifiable stages suggested by the model. Unlike stage models, which sequence learning styles over time, absorptive capacity can explain how firms might simultaneously engage in both exploitive and exploratory learning. Absorptive capacity, the ability to acquire and assimilate new information (Cohen & Levinthal, 1991), is based on the mechanism of associative learning, whereby new data is acquired, stored, and organized in memory through its connections with existing information (Bower & Hilgard, 1981). Based on associative learning, absorptive capacity builds on existing skills and knowledge by seeking out and acquiring new skills and knowledge related to the existing base. The steady refinement of the existing knowledge base forms the basis for exploitative learning while exploratory learning is manifested in the acquisition of new, related knowledge. The firm grows better able to exploit its existing knowledge base as it grows more flexible and adaptive through the continual addition of new knowledge.

Thus absorptive capacity enables the entrepreneurial firm to generate new combinations of existing knowledge, (Kogut & Zander, 1992) while adding to the repertoire of capabilities (Volberda, 1996) that enables successful new entry. Yielding new insights and facilitating the perception of opportunities absorptive capacity provides "the genesis of new competencies" (Zahra & George, 2002: 190) essential for entrepreneurial action. This in turn cultivates the development of an entrepreneurial mindset (McGrath & MacMillian, 2000) and fosters and supports entrepreneurial action (Smith & DeGregorio, 2002). We apply the concept of absorptive capacity to a sample of small service firms to understand the relationship between absorptive capacity, organizational policies and their impact on firm performance.

HYPOTHESES

A number of factors contribute to absorptive capacity. These include external and internal communication and systems and routines at the organizational level that stimulate learning, which reflects how the organization integrates and applies information that its communication systems acquire.

COMMUNICATIONS

The requirement for external communication is an element in several organizational theories. For example, systems theory defines performance in terms of the ability of the system to engage and exploit the environment (Price, 1972). The information processing literature states that successful performance depends on the ability to obtain and process information from the environment (Thompson, 1967). The need to learn from the environment is also a critical component of resource dependence theory (Pfeffer & Salancik, 1978). Organization structure itself has been defined as a tool for acquiring information about the world and for improving capabilities (Stinchcombe, 1990). External information is acquired in a wide variety of ways, for example, through systems devoted to environmental scanning (Fahey, 1999) that increase awareness of and utilization information. Interaction with customers, particularly when pushed up through an organization's hierarchy, improves information and knowledge awareness and acquisition (Nonaka & Takeuchi, 1995). Integration of new knowledge and skill can result from alliances with other firms (Lane & Lubatkin, 1998), particularly in areas that are new to the firm.

Effective integration of new knowledge and information influences the firm's combinative capabilities, the ability to "generate new combinations of existing knowledge" and to "exploit its knowledge of the unexplored potential of the technology" (Kogut & Zander, 1992: 391). Such capabilities have a positive influence on the ability of firms to exploit product, production, and marketing knowledge (Van den Bosch, Volberda, & de Boer 1999).

The need for external communication extends to other levels of the organization. Research at the group level (Burpitt & Bigoness, 1997; Ancona, 1990) has shown that the highest performance ratings went to externally oriented teams rather than those that focus on internal processes. Members of successful groups "interact with one another, but they are also proactive with outsiders, seeking information and resources, interpreting signals" (Ancona & Caldwell, 1992: 635). The product development literature links external communication with a successful development process and the capability for idea generation (von Hippel, 1988). Levin and colleagues identified five external sources relevant to the collection of new information and the accumulation of knowledge: equipment and materials suppliers, product users, government agencies, and universities (Levin et. al., 1983). Interaction with outside agents creates a better learning environment and encourages employees to keep work skills up to date (Burpitt & Rondinelli, 2000).

Internal communication can also increase absorptive capacity. Effective exploitation of new knowledge requires sharing that knowledge among firm members (Spender, 1996). Sharing and cross-fertilization promotes understanding and comprehension (Garvin, 1993). Cohen and Levinthal (1990) note that the mere presence of information is insufficient for value generation.

A host of cognitive, behavioral, political barriers may inhibit the free exchange of information (Foster, 1996; Garud & Nayyar, 1994; Garvin, 1993). Despite the characterization by economists of knowledge as "a freely accessible public good" in the public domain (Cohen & Levinthal, 1994: 228), a growing body of research has shown that the assimilation and application of extramural knowledge, rather than being readily accessible, requires the development of a capability to do so (Cockburn, Henderson, Stern, 2000; Eisenhard & Martin, 2000; Cohen & Levinthal, 1994).

A variety of social integration mechanisms, formal or informal, can assist in enhancing internal communication (Zahra & George, 2002). The utilization of complex, team-based activities, where autonomous multi-disciplinary teams participate through a complete development cycle, can enhance the integration and utilization of new knowledge throughout an entire organization (Grant, 1996). Routines and processes that bring staff from a variety of operational areas into the analysis, processing, and interpretation of incoming information increases the likelihood such information will be understood and applied (Rosenkopf & Nerkar, 2001; Leonard-Barton, 1995; Cyert & March, 1963). Structures that provide opportunity for staff to interact across organizational levels and functional areas can enhance the speed and efficiency of knowledge transfer and the degree that new knowledge is understood to "connect" with the organization's existing knowledge base (Burpitt & Bigoness, 1997). Cohen and Levinthal (1990) proposed a variety of mechanisms thought to influence the development of absorptive capacity. These include the ease with which knowledge is transferred across and within the firm, structures that facilitate communication across organizational boundaries, a broad, active network of internal and external relationships across vertical and horizontal dimensions of the organization and the variety of cross-functional interactions within the firm.

Effective learning benefits from the diffusion of information through a variety of lenses and perspectives (Garvin, 1993; Huber, 1991; Fiol & Lyles, 1985). This diffusion process links the information with agents throughout the firm. This can increase absorptive capacity and enhance the organization's ability to process alternative interpretations of external data, allowing for the "simultaneous agreement and disagreement" (Foil, 1994: 403) that is critical for the assimilation and utilization of information. Over reliance on centralized boundary spanning roles can inhibit the processing of information, especially when the variety and volume of messages overwhelm the spanner's capacity to absorb and pass information along (Leonard-Barton, D. 1995; Ancona, D. G., & Caldwell, D. F. 1992; Starbuck, 1992; Fiol & Lyles, 1985). An increase in the number of people involved in internal communications can enhance the organization's ability to develop the "complicated understanding" (Bartunek, Gordon & Weathersby, 1983: 276) required to engage in the exploitive and exploratory learning needed to build absorptive capacity. Based on the preceding, we hypothesize:

H1	Effective organizational communication will be positively associated with greater levels of organizational absorptive capacity.
H2	Effective organizational communication within the organization will be positively associated with the frequency of new venture efforts.

H3	Effective organizational communication will be positively associated with the overall success of new ventures.
H4	Effective organizational communication will be positively associated with increased revenue.

EXPERIENTIAL LEARNING

Many researchers propose that successful organization adaptation and flexibility hinges on the ability to apply new knowledge (Huber, 1991; Fiol & Lyles, 1985). Valuable for all organizations, such a capability is critical for the entrepreneurial firm, enabling it to alter systems, procedures, and behaviors in response to emerging opportunities (Sinkula, Baker, Noordewier, 1997). For the entrepreneurial firm "The only alternative may be continuous learning" (Hall & Fukami, 1979: 128). The development of this capability follows well-known learning mechanisms, for example practice, the acceptance of small losses, experimentation, and small and frequent variations in familiar routine (Haleblian & Finkelstein, 1999).

Sitkin (1992) suggests that learning takes one of two forms: learning that leads to the development of increasingly efficient and reliable routines or learning that adds new knowledge and increases flexibility. This follows the contrast between lower and higher level learning (Fiol & Lyles, 1985) and single and double-loop learning (Argyris & Schon, 1978). "The main impediments to second order learning and change are the redundancy and paucity of experience" (Lant & Mezias, 1992: 64). What is needed is regular opportunity for new experiences leading to the acquisition of new skills alongside continual improvements in current routines. Such experience "enables the firm to learn, adapt, change, renew over time" (Collis, 1994: 145).

Lant & Mezias (1992) describe the importance of new experiences in the development of high change potential versus low change potential firms. High change potential firms acquire the mastery of new skills, not only in their familiar domain, but also from several domains that relate to and complement one another. Such experiences should lead to the continuous refinement of the existing knowledge and skill while stimulating continuous exploration and mastery of new knowledge and skill. Such a capability is not developed through the repetition and refinement of routine activities alone. It requires a history of change resulting in the development of dynamic capabilities (Teece, Pisano, & Shuen, 1997) that enable a firm to renew, adapt, and add to core competencies over time.

Lant and Mezias describe organizations as "experimental learning systems" (1992: 50). Huber describes experimenting organizations as those that "maintain themselves in a state of frequent, nearly continuous change in structures, processes, domains, and goals" (1991: 93). And, while formal organizational experimentation is rare (Huber, 1991), experimental type behavior is observable in the so-called "test makers" described by Daft and Weick (1984). Experimental behavior of this nature may include the performance of trials to gauge reactions and receptivity to potential initiatives. The more successful of such activities often occurs on limited scale, what Wildavsky (1988) terms small doses of experimentation. Such organizational experiments need not necessarily follow rigorous experimental designs. They may take the form of post-hoc analysis of

so-called "natural" experiments (Landau, 1973), the careful, systematic analysis of actions after the fact, including comparison with the outcome of prior alternative actions.

One manifestation of organizational experimentation is what Wildavsky (1988) terms foolish behavior. This may be observed when firms experiment with procedures and technologies that are clearly successful, countering the maxim "if it ain't broke don't fix it." The result of such experiments can be the creation of second order learning leading to the mastery of new skills and knowledge and the development of new routines, versus the first order learning that results in more efficient performance of current routines (Lant & Mezias). One technique to facilitate such an outcome is to break experimental projects into small, manageable units. While this may limit the scale of any immediate gains it can, by increasing the likelihood of initial successes, resulting in what Weick (1984) terms "small wins." Such small wins can build a sense of confidence and increase the willingness to continue in the effort (Lant & Mezias, 1992). Limiting the scale of experimental efforts also minimizes the potential cost. Additionally, experimental efforts are by their very nature undertaken with a greater tolerance for failure than normal operations, a tolerance that is critical if managers are expected to step beyond their familiar routines (Sitkin, 1992). To maximize effectiveness the tasks associated with experimentation should be sufficiently challenging to sustain interest in the effort and to stretch the capabilities of participants (Locke & Latham, 1990). The literature on organizational learning (Starbuck, 1992; Huber, 1991; Hedberg, Nystrom, & Starbuck, 1976) suggests a number of benefits of regular organizational experimentation for an entrepreneurial firm. Such firms should be "less resistant to adopting unfamiliar features or engaging unfamiliar environments" (Huber 1991: 93) and more open to the consideration of new initiatives and products. The skills and flexibility acquired in experimental behaviors should result in firms being more adept at acquiring, interpreting, and exploiting the new information and knowledge (Cohen & Levinthal, 1990; Fiol & Lyles, 1985; Daft & Weick, 1984) that is needed for the successful launch of new strategies or the penetration of new and different markets (Van den Bosch, Volberda, & de Boer, 1999; Grant, 1996).

Based on the preceding, we hypothesize:

H5	Organizational experiential learning will be positively associated with greater levels of organizational absorptive capacity.
H6	Organizational experiential learning will be positively associated with the frequency of new venture efforts within the organization.
H7	Organizational experiential learning will be positively associated with the overall success of new ventures within the organization.
H8	Organizational experiential learning will be positively associated with increased revenue within the organization.

RESEARCH DESIGN

This study was conducted in two phases. Phase I used a qualitative, field based methodology to investigate organizational performance and the various factors that might stimulate staff level

contribution to that performance. Phase I provided the opportunity to develop measures of the study's key constructs. Phase II employed a longitudinal design to investigate the relationships between those constructs over a five year period from 1997, when the initial data were collected, and 2002. Architectural firms formed the sample for the study. These firms are representative of the knowledge intensive, professional service firms that play an increasing role in our economy (Burpitt & Rondinelli, 2000). The firms were selected from the current AIA (American Institute of Architects) national directory. Selection criteria required that firms employ several architects and related professionals, such as engineers, landscape architects, and interior designers and be stand alone firms, as opposed to branch offices of larger firms. This information is described in the directory. The principals and members of the senior design team of each firm supplied all information for the study.

PHASE I

Phase I interviews were conducted among firms in a southeastern metro area. Nineteen firms from a total population of fifty-eight firms met the criteria. Ten were randomly selected. Nine agreed to participate. These firms employed an average of 14 professional staff persons in addition to various clerical positions. Interviews were held with the principals and professional staff in each firm. They were asked to suggest characteristics they felt were critical to the long-term success of organizations in their field and to describe characteristics they felt would enable the firm to successfully enter new markets. Sixty-nine interviews were conducted, including interviews with fourteen principals and fifty-five staff members. The researcher collected interview data in the form of verbatim notes. Interview analysis utilized a multi-case design suggested by Eisenhardt (1989). A systematic review of data, composed of write-ups of material collected within each firm, permitted the researcher to discern patters and commonalties across firms. This review provided a listing of the most common responses. This listing became the basis for the items that would comprise the scales for measuring organization performance and its antecedents. The scales were pre-tested by three architects not part of the original sample. These architects, from firms located in a second, southeastern city, were selected from the same directory used to identify the initial sample. All three represented firms similar in size to those in the initial sample, information available in the directory. These architects suggested changes in wording to clarify and eliminate redundancy in the items. These were then used as the measures.

Independent variables were measured with multi-item Likert scales. Seven items were used to measure a firm's level of absorptive capacity. Five items were developed to indicate types of experiential learning. Five items were developed to measure communication. Respondents indicated their agreement with the items on these scales on a five-point Likert scale, ranging from 1 = do not agree at all to 5 = agree to a great extent. Average scores on these scales were then calculated for each firm.

Outcome measures included the frequency of new venture efforts, revenue growth, perceptions of their success, and stability versus turnover of the staff. New market entry was defined as any venture into a type of market or customer group that was new to the firm. The frequency of new market entry was measured with a 5-point scale that ranked the number of new

entry efforts as a percentage of all jobs bided on where 1 = no efforts, 2 = less than five percent, 3 = greater than five but less than ten percent, 4 = greater than ten but less than fifteen percent, and 5 = greater than 15 percent. Revenue growth measured overall revenue growth over the previous five year period where 1 = no revenue growth, 2 = less than five percent growth in revenue, 3 = greater than five but less than ten percent, 4 = greater than ten but less than fifteen percent, and 5 = greater than 15 percent of revenue. Guidance on the percentage brackets was suggested in interviews with the three architects who pretested the items. Staff stability was measured on a 5-point that ranked staff turnover and layoffs. The firm principals, each of whom had been with the firms during the period covered, provided measures of new entry, revenue growth, and staff stability. Perception of the overall success of all new entry efforts during the previous five year period was measured on a 5-point scale where one indicated that overall the new entry efforts were perceived as unsuccessful and five indicating that overall the new entry efforts were perceived as very successful. Perceptions of new entry success were taken from the all sample respondents with an average score computed for each firm.

PHASE II

The criteria used to select the sample were those used in Phase I to ensure similarity with the firms studied in Phase I. A list of 160 firms was developed from firms in five cities: Chicago, Atlanta, Dallas, Washington, D. C., and Seattle. Approximately 30 firms were selected for each city. One hundred forty-eight (148) agreed to participate. All 148 firms participated in 1997, the date of the initial data collection. The number of firms that remained in the study declined between 1997 and final data collection in 2002, when 142 firms remained in the study. The six that dropped out had either declined to continue to participate or had been purchased by other firms. As in the case of Phase 1, the principals and members of the design team of each firm was asked to participate. An average of 4 surveys were completed and returned from each firm, for a total of 561 surveys. To ensure confidentiality and to stimulate participation the questionnaires were completed via a web-based site. Respondents were provided a web address and once logged on completed the survey by clicking responses on the questionnaire. The ease of use and confidentiality of this methodology may have contributed to the high return rate. It should be noted that all data was self-reported. While this has the potential for an under reporting of unsuccessful efforts the confidential nature of the data collection and offer to provide follow-up summaries of the research that might provide some guidance for all of the firms may have minimized such a bias.

RESULTS

Cronbach alphas were computed for each scale. The alphas for the scales were: absorptive capacity = .867; communications = .789; experiential learning = .812. Correlation statistics are shown in Table 1. The correlation matrix reveals positive, significant relationships between experiential learning and absorptive capacity, new entry, and new entry success. No relationship was indicated between learning and revenue growth or staff stability. The correlation reveals a similar set of relationships between communication and absorptive capacity, new entry, and new

market success. The analysis also reveals a significant relationship between absorptive capacity and both new entry frequency and new entry success. The analysis revealed significant relationships between entry success, revenue growth, and staff stability.

These results support hypotheses 1 that effective organizational communication will be positively related to absorptive capacity, hypothesis 2 that effective organization communication will be positively related with the frequency of new venture efforts, and hypothesis 3 that such communication will be positively related to the evaluation of the success of those new ventures.

Table 1. Correlations

Items	mean	s.d.	1	2	3	4	5	6
1. Experiential Learning		2.99	.50	--				
2. Communication	3.32	.45	.66*	--				
3. Absorptive Capacity		3.83	.33	.79*	.72*	--		
4. New Venture Frequency	3.40	1.09	.53*	.71*	.72*	--		
5. New Venture Success		3.60	.99	.77*	.76*	.71*	.65*	--
6. Revenue Growth	3.40	.50	.25	-.05	.19	-.02	.13*	--
7. Staff Level Stability	2.49	.50	-.08	.09	-.25	.03	.21*	.02

The correlation statistics did not support a hypothesized relationship between communication and revenue growth or staff stability. The results did support hypotheses 6, 7, and 8 that posit a positive relationship between experiential learning and absorptive capacity, new venture frequency, and new venture success respectively. As with communication, correlation statistics did not support a hypothesized relationship between experiential learning and revenue growth.

Regression statistics provided additional information regarding the proposed relationships. The results of the regression are shown in Table 2. These statistics show significant relationships between experiential learning and communication absorptive capacity, between learning and communication and new venture frequency, and between learning and communication and new venture success. Similarly, the regression did not support the proposed relationships between experiential learning and communication on revenue growth.

These results suggest a complex pattern of relationships between the variables. The organizational context variables, communication and experiential learning, are positively linked to absorptive capacity. Absorptive capacity is in turn linked to both new venture frequency and new venture success. While the frequency of new ventures was not found to be related to revenue growth or staff stability, correlation statistics do suggest a relationship between new venture success and revenue growth ($p < .05$) and staff stability ($p < .05$). And, while neither experiential learning nor organizational communication show a significant, direct relationship with revenue growth or staff

stability, the influence of communication and experiential learning may be traced through absorptive capacity to new venture success.

Table 2. Regression Analysis

Dep-Variables	Indep-Variables	Beta	p	F	p of F
Absorptive Capacity	Learning	.36	.00	19.27	.00
	Communication	.26	.05		
New Venture Frequency	Learning	.22	.00	9.22	.00
	Communication	.57	.01		
New Venture Success	Learning	.94	.01	20.44	.00
	Communication	.97	.02		
Revenue Growth	Learning	.50	.10	1.18	.92
	Communication	-.43	.21		
Staff Level Stability	Learning	-.03	.92	.08	.92
	Communication	-.08	.82		

DISCUSSION

By focusing on a homogenous group of competitors this study provides a test of the variance in the approaches to the management of small organizations and provides evidence of the benefits of policies that contribute to entrepreneurial behavior, defined by new entry. The study establishes evidence of a relationship between elements of organizational context and organizational level attributes such as absorptive capacity and performance. When staff maintains frequent communication with customers, with professional colleagues in and out of the firm, and across functional areas within the firm, the result is greater levels of absorptive capacity and an enhanced ability to take advantage of new opportunities in the marketplace. The same is also true when the organization maintains a steady program of experiential learning. The linkage between communication and learning and absorptive capacity is reflected in the level and success of new ventures and is reflected as well in revenue growth and staff level stability.

In contrast to the spotlight that much of the entrepreneurial literature reserves for the individual entrepreneur, we show that policies and systems at the organizational level are important as well. Put differently, the results support the initial supposition that the organization is something more than the shadow of the entrepreneur. Because the data was collected from two sources, dependent variables from principals and independent variables from staff, problems with common

method variance are reduced. The study's longitudinal design reduces problem of cross sectional inference.

Contrary to the hypotheses, the study did not reveal a positive and direct relationship between contextual conditions that lead to absorptive capacity and revenue growth. To trace a linkage between absorptive capacity and revenue growth and staff stability, absorptive capacity must first lead to successful new venture efforts. Thus absorptive capacity appears to be an enabling condition for revenue growth and staff stability. Absent absorptive capacity we see little evidence of success at new venture. The critical first condition in this sequence is an organizational context that enhances this knowledge-based resource.

All of the constructs associated with absorptive capacity represent readily attainable organizational conditions. Organizations can encourage and support communications with customers and with organizational members from all across the organization. The only costs associated with such moves is shared access to information. The gains in absorptive capacity and performance with respect to success new entry seem worth the cost. The payoff is similar in the case of encouraging and supporting experiential learning. Shifting people through a variety of tasks can be comparatively costly, and taking on new and novel work can be inefficient, but we see very positive organizational benefits, benefits associated with enhanced absorptive capacity (Cohen & Levinthal, 1994, 1990; Bower & Hilgard, 1981).

While these might be activities that any firm would support, the interview data suggested otherwise. This data described a clear distinction between those that did support these kinds of opportunities and those that did not. Several comments by subjects of the "non-supportive" set of firms may be illustrative. "I've gotten really good at 'specing a job, but that's all I do…never have a chance to try anything different." "(The firm) doesn't seem to want us to learn new things. (My boss) believes that branching out will just make me less efficient." "Nobody but nobody gets to talk to the clients but the project architect and a principal of the firm. They just don't want to give up that control that comes from controlled access to the clients."

Comments from firms with more open communications and a greater commitment to learning illustrate a contrast. "Everyone who works on a project interacts with the customer. We just did a hospital addition and those of us on the project met repeatedly with the administrators, doctors, nurses, and even members of the volunteer auxiliary." "We have (project) reviews with the entire team several times throughout the life of a job and these reviews are attended by everyone in the firm, even those working on other jobs." "We have a pretty good track record at experimenting with new methods here. Not all work, of course, but we move forward." "I believe our strategy of experimenting with small jobs outside current base has made us much more flexible, much better at jumping on new opportunities when they present themselves." One architect remarked that the emphasis on trying new things had resulted in "a strong belief that we can do it. We are much more willing now to jump into something new, more confident we have the resources to pull it off."

A limitation of this study is the self-reported nature of the data, that which describes both the independent and the dependent variables. The data describing the dependent variables, the organizational performance variables, was reported by the firm principles. There is always the possibility that the owners and senior managers of a firm might be inclined to under report unfavorable information, the lack of success in new entry performance, for example. The

confidentiality of the study and the fact that the firms' principals had nothing to lose by accurately reporting the requested information may have offset such a possibility. A second limitation of the study is the single industry focus, a limitation that suggest further research that might broaden the scope to include other industries. Conditions that apply to professional service firms, in this case architectural firms, may not apply to other industries, including manufacturing industries. A second extension of this research might more closely examine the implications of effective organizational learning and communication on organizational flexibility versus efficiency. While the data did reveal a positive relationship between organizational learning and communication and new entry frequency and success it did not reveal a direct link between these two predictor variables and revenue growth, a key performance measure. The implications of these patterns on the influence of organization learning and communication and organizational efficiency versus flexibility, not developed in this study, would also be an attractive avenue for future research.

We have attempted to show that descriptions of entrepreneurial organizations that focuses on the individual entrepreneur alone overlooks critical information about the properties of the organization in which the entrepreneur works. An exclusive focus on one level or the other obscures the extent phenomena such as absorptive capacity and performance are neither strictly micro nor macro in nature but are multi-level constructs (Robbins, Hulin, & Rousseau, 1978). A full understanding of these concepts requires a consideration of both the entrepreneur and the entrepreneur's organization.

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ECONOMIC DEVELOPMENT: CHANGING THE POLICY TO SUPPORT ENTREPRENEURSHIP

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ABSTRACT

This article explores the traditional approach to economic development which embodied the battle cry, "What's good for General Motors is good for America." The authors explore and explain the changes in the world economy which have made the traditional approach passé. They explore the impact of entrepreneurship on employment and the U.S. economy, and demonstrate that the greatest impact on the economy during the decade of the 1990s, as well as the greatest potential for future economic development, is vested in those firms with less than 20 employees. The authors propose specific economic development policy changes which can result in creating an atmosphere which is more conducive to entrepreneurial activity, and suggest that the battle cry should be changed to, "What's good for Entrepreneurship is good for America."

INTRODUCTION

The local television news broadcast last night opened with the announcement of the closing of a factory which employed 500 people in the county. The factory is closing its doors and all of the workers will be unemployed within three months. Like most people in the United States, the authors have heard this or a similar story many times in the last few years. This is, indeed, a dismal story, and yet, one which was completely predictable. In fact, had one cared to look into the future 20 years ago when that factory was first built and first began operations, one would have known that it would close some day; the only unknown factor was when it would close. Since all factories are subject to declining efficiencies, all of them will eventually close. When they do, the effects are likely to be devastating. In the opinion of the authors, economic development which is based upon wooing large manufacturing firms is not sustainable. What is sustainable? In the opinion of the authors, economic development based upon entrepreneurial activity is sustainable. In the following pages we will demonstrate the bases for both of these conclusions.

ECONOMIC EVOLUTION

Schumpeter (1942) predicted the managed economies which emerged after World War II with their emphases on giant corporations practicing economies of scale. These managed economies

performed well for western nations for more than 40 years, fostering a period of economic prosperity, jobs growth, stability and security (Audretsch & Thurik, 1997; Wennekers & Thurik, 1999). However, the end of the Cold War ushered in a new economic era and a true global economy which made maintaining jobs in high wage nations problematic (Audretsch & Thurik, 2000).

This "new economy" which emerged in response to the new economic era, or which likely caused the evolution of the new era, functions differently and the effects of entrepreneurship are more dramatic. For example, IBM faced 2,500 competitors for its products in 1965; in 1992, it faced 50,000 competitors (Atkinson & Court, 1998). The turbulence and competitive intensity which emerged during the 1980s and continue today is accelerating. The number of firms being born and dying each year is growing and this undermines the stability of old economic arrangements. As less innovative and less efficient companies die or contract, more innovative and more efficient companies take their place (Atkinson & Court, 1998). In the 1950s and 1960s, it took 20 years for one third of the Fortune 500 to be replaced by other firms; another one third was replaced in the following 10 years; but it only took 5 years to accomplish the same replacement during the 1980s (Audretsch, 1995). Consumer choices are exploding with more than 50,000 new products appearing each year, in comparison to a few thousand annually in 1970 (Atkinson & Court, 1998). Innovation and intellectual capital are soaring. Consider that 80,000 trademark applications were filed in 1989, a record year, but 180,000 were filed in 1995 (Atkinson & Court, 1998). In the new economy of the 1990s and 2000s, entrepreneurial effort and innovation emerged as the dominant factors of employment growth and economic development. Large corporations had to downsize to survive, while new firms in new industries created the jobs (Davis, Haltiwanger & Schuh, 1996a; 1996b; Carree & Klomp, 1996). In fact, in manufacturing, employment grew by 21.25% in firms with less than 20 employees and decreased by 8.47% in firms with more than 500 employees between 1990 and 1995 (Audretsch & Thurik, 2000; Acs & Armington, 1998).

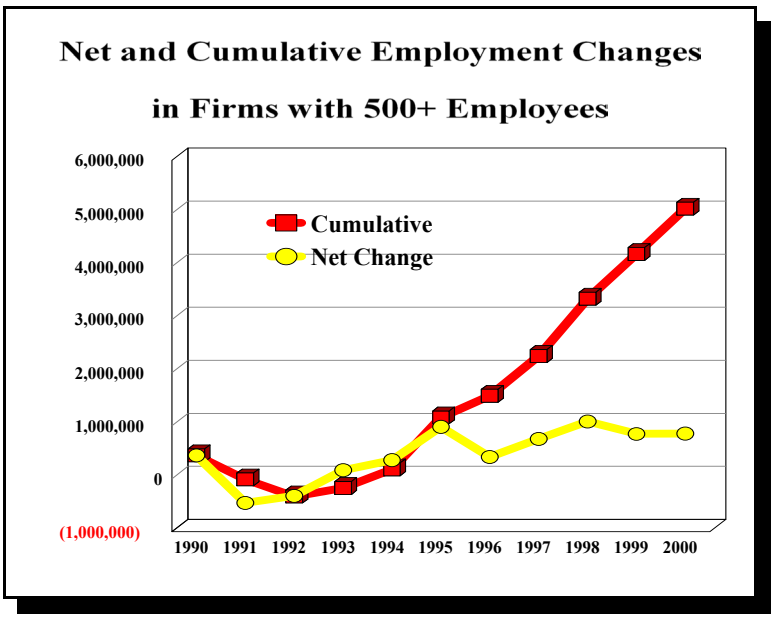
These changes were occurring planet wide. Konings (1995), Hughes (1993), and Robson and Gallagher (1994) found that small firms became the key to employment growth in the United Kingdom during the 1980s. Baldwin and Picot (1995) found the same pattern in Canada; and, Bais, Bangma and Verhoeven (1997) reported on the importance of small firms in the Netherlands in the early 1990s. This was apparently not the case in Germany (Wagner, 1995), but aside from its experience, small firms have created most of the new jobs in Europe and North America (Audretsch & Thurik, 2000).

At the same time that the "new economy" was emerging, a focus on economic value-added evolved during the mid 1990s (Roberts & Cohen, 2002), and the concepts of social and natural capital began to be used to explain differences in regional economic performance (Grootaert, 1997; Helliwell & Putman, 2000). Social capital, in this perspective, represents the combined knowledge, cultural assets, skills, competencies and networks of civic society (Nelson, 1998). Natural capital represents the environmental attributes of a region and its natural resources (Hawken, Lovins & Lovins, 1999). Mohapatra (1998) presented evidence that economic development is not sustainable if it fails to replenish and develop these other forms of capital. Hawken, Lovins and Lovins (1999) suggest that traditional economic development is not sustainable because it depletes the stock of natural capital and limits the potential to increase social capital.

PATTERNS IN EMPLOYMENT CHANGES

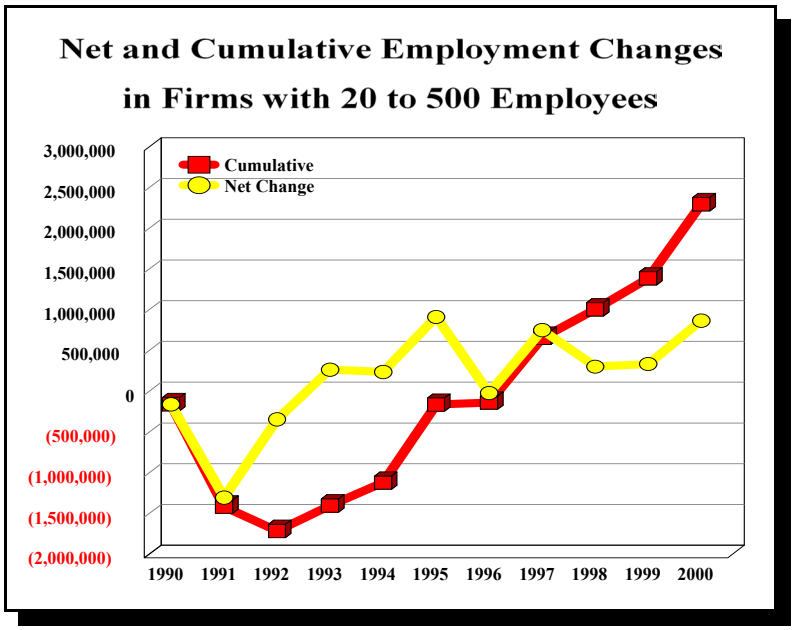
The Office of Advocacy, U.S. Small Business Administration, maintains records on employer firm births, deaths, expansions and contractions. These data, drawn from the U.S. Bureau of the Census track employment changes in firms which actually have employees. In other words, firms without employees are excluded. Further, a firm must survive for at least 5 years in order to be counted in the data. This information is now complete for the decade 1990 through 2000, and it forms a fantastic basis for evaluation of the patterns in employment in the United States. It is available on the SBA web page (www.sba.gov/advo/stats/dyn_b_d8900.pdf). Data in the following graphs were drawn from the SBA statistics and we refer the reader to that source for the raw data which we used to analyze the trends.

The figure to the right presents a graph of the net effect on U.S. employment each year of births, deaths, expansions and contractions of firms with 500 or more employees for each year during the decade, 1990 through 2000. In addition, the graph plots the cumulative effect on employment of the large firm sector. To put the data into perspective, of the 5,074,000 employer firms in existence in 1990, 14,000 had 500 or more employees; and, of the total 1990 labor pool of 93,470,000, these large firms employed 43,302,000 (www.sba.gov/advo/research/rs190tot.pdf). As the graph shows, in aggregate, firms with 500 or more employees produced an increase in employment between 1990 and 2000 of five million jobs. That represents a total increase in employment over the decade of 5.4%, or an increase in the large firm work force of 11.8%.

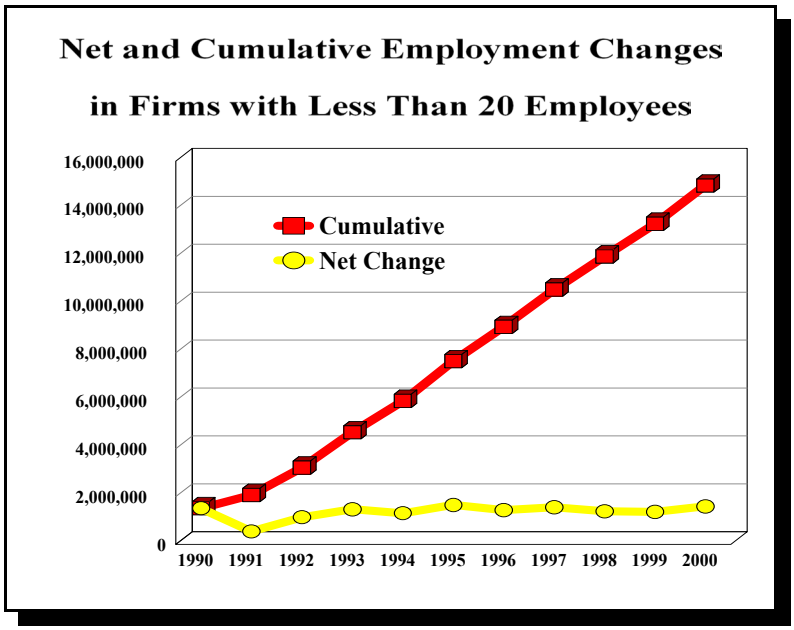


It appears that the downsizing, outsourcing, and reengineering that has been in vogue for the last decade has taken a toll on employment in large companies. Then, dare we say it? There is the malfeasance. Look at Enron and its gigantic failure, the 7th largest firm in the world at the time of its collapse. Not only were the employees of its worldwide reach out of work, hundreds of other smaller companies were impacted by its decline. Suppliers of various types lost their way as well as the accounting firm which allowed the malfeasance. In retrospect, it is clear that the ripple effect of large company failure is far more dramatic than once thought. When we reflect upon the issue we can now see that the malfeasance of a handful of giant firms has been far more deleterious on U.S. employment than has been recognized.

To examine how job creation performance of large firms compares with middle sized firms, consider the data displayed on the graph to the right. As before, the graph shows the net effect on U.S. employment each year of births, deaths, expansions and contractions of firms. For this sector, the authors have isolated firms with more than 20 employees, but less than 500 employees. In 1990, there were 472,000 such firms, and these employed 31,255,000 people (www.sba.gov/advo/research/rs190tot.pdf). As the graph shows, these firms accounted for a net increase in U.S. employment over the decade of 2,342,000 jobs. That represents an increase in total employment of 2.5%, or an increase in the middle sized firm sector employment of 7.5%. Clearly, the middle sized firm sector contributed less to the U.S. economy during this decade than did the large firm sector. This was largely the result of the significant decrease in employment which occurred in 1991 and 1992. Those two years represented a loss of almost two million jobs.



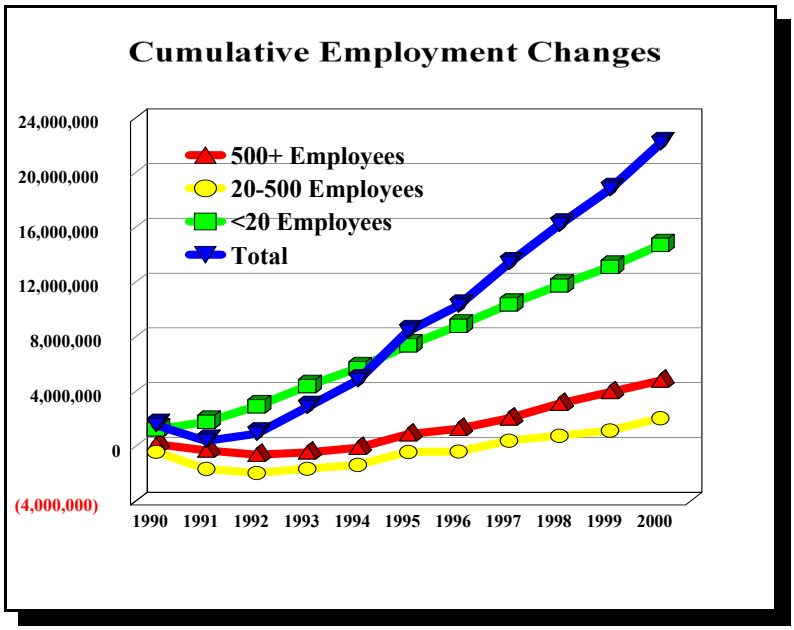
The impact of the smallest firms in the U.S., those employing less than 20 employees, is displayed in the figure to the right. There were 4,588,000 such firms in 1990, employing a total of 18,812,000 people. As the graph shows, the cumulative effect of this employer firm sector over the decade was an increase in total employment of 14,989,000 jobs. That represents an increase in the total U.S. employment of 16%, and an increase in the small business sector employment of 79.3%. Clearly, the impact of this sector on the economic development of the nation is dramatically superior to



the middle sized and large firm sectors. The impact is not just a function of the number of firms, as the total employment of the sector grew by almost 80% during the decade. The small firms increased significantly in number, and increased significantly in employment, and did so while both of the other sectors were growing at only modest rates.

One should keep in mind that the foregoing data represents only employer firms. Proprietorships and small businesses without payrolls are not included in the data. There are 16 million more such firms in the U.S., and although their impact is on a single person, they represent a formidable sector of the nation's economy.

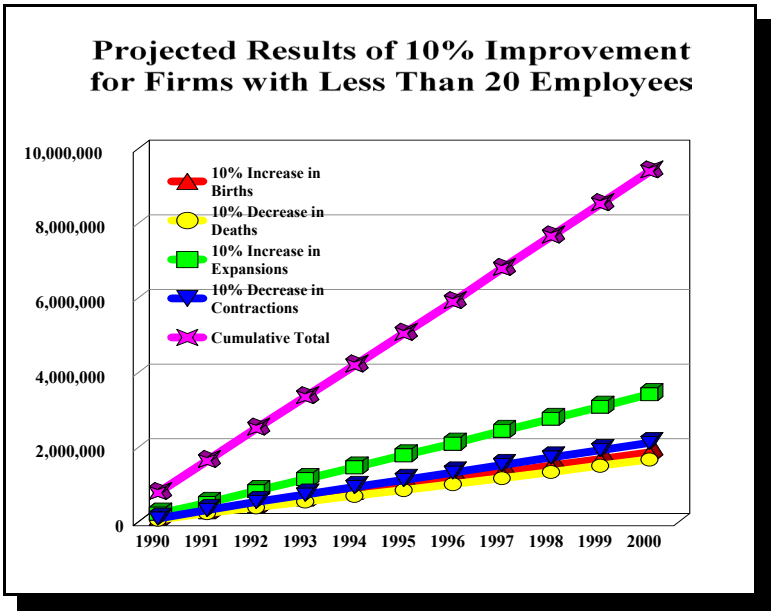
The graph to the right recaps the total growth in jobs over the decade, and shows the source of that growth. In total, U.S. employment rose by 22,420,00 jobs. The smallest employer firms in the nation, those with less than 20 employees, accounted for 67% of this growth. Firms with 20 to 500 employees, what we have termed middle sized firms, accounted for 10% of the total growth. Firms with more than 500 employees, the largest firms in our economy contributed 23% of the growth. This suggests that our economic development emphasis has been misplaced.



THE NEED FOR CHANGE IN ECONOMIC DEVELOPMENT POLICIES

Traditional economic development activity has involved local government and state employees actively soliciting and recruiting large employers through offers of tax moratoriums, training and relocation assistance, infrastructure development or enhancement, or any of a host of other incentive programs or proposals. These efforts are expensive and have been highly lauded in the past as major sources of job growth in a state or county. The philosophy has long been that one recruits large employers and small firms spring up around them to service the needs of the large firms. Given the limited growth of large firms contrasted against the rapid growth of small firms, that perspective now seems flawed.

What would be the effect of expending a portion of the cost of these traditional programs in efforts aimed at improving the success of the smallest firms in the nation? To answer that question, the authors undertook an examination of the data reported above from the perspective of a speculative impact.



The graph to the right displays the net effect, and the aggregate cumulative impact, of a 10% increase in the birth rate of firms with less than 20 employees, a 10% decrease in the death rate of such firms, a 10% decrease in the employment contraction of such firms, and a 10% increase in the expansion rate for such firms, over the decade of the 1990s. As the graph shows, the cumulative total effect would have been dramatic, to say the least. Had our economic development efforts targeted this smallest firm sector, and had they only had an average of a 10% improvement in performance, the nation would have experienced an increase in employment of 9,494,000 jobs; or a 42% increase in employment growth.

Could economic development efforts have impacted this sector? The battle cry of economic development people 30 years ago, *"What's good for General Motors is good for America,"* might have made sense then, but it certainly does not today in a climate dominated by entrepreneurship. Consider the difference in perspective which a change in target embraces. If one wishes to focus on supporting large ventures, then economic development efforts should focus on natural resources, labor and capital, but if one wishes to focus on entrepreneurial development, then economic development policies must shift to establishing an environment which facilitates the creation and commercialization of knowledge (Audretsch & Thurik, 2000).

Specific recommendations for local, state, and federal policies which contribute to the development of a supportive environment for entrepreneurship include:

- Policies that channel formal and informal financing to prospective, nascent and established entrepreneurs;
- Policies that decrease the regulatory and compliance burden of small, and start-up ventures;
- Policies that encourage and support private investment in start-up and growing ventures;
- Policies that support and expand research and development activities in public and private institutions and organizations;
- Policies that improve and expand education and training opportunities and access; and,
- Policies which support the development of clusters of entrepreneurial interest and emphasis.

Could diversion of a portion of the local, state, and federal expenditures for economic development over the last decade have impacted small businesses? The authors believe so, and the potential gains from such diversion are so great that they cry out for change. Reynolds, Bygrave, Autio, Cox and Hay (2002) conducted a study of entrepreneurship in 37 nations, funded by the Kauffman Foundation. Their study, published as the *Global Entrepreneurship Monitor*, which included data from 1999, 2000, and 2001, clearly established direct linkages throughout the world between entrepreneurial activity, and both gross domestic product and employment. The United States ranked eleventh in entrepreneurial activity behind Thailand, India, Chile, Korea, Argentina, New Zealand, Brazil, Mexico, China, and Iceland. Further, the U.S. reported declines in the growth rate of its entrepreneurial activity during the period of study and these were reflected in declines in the growth rate of its gross domestic product (Reynolds, Bygrave, Autio, Cox & Hay, 2002). What stronger wake-up call could exist? It's time to change the battle cry to, *"What's good for Entrepreneurship is good for America."*

ENTREPRENEURSHIP AND WAGES

One concern which seems to impede economic development policy change is that job creation by small firms is associated with low wages. A number of empirical studies have demonstrated that small firms pay lower wages (i.e., Brown, Hamilton & Medoff, 1990; Oosterbeek & Van Praag, 1995). These studies employed static, cross sectional methodologies. That is, the researchers measured aggregate wages by firm size (Audretsch & Thurik, 2000). That approach includes small firms which will not survive. A more dynamic view of entrepreneurship suggests that people start firms to pursue new and untested ideas, and market reaction determines the viability of those ideas (Jovanovic, 1982). If the idea is not viable, the firm will stagnate and may ultimately die, but if the idea is a good one, the firm will grow and flourish (Geroski, 1995). Using longitudinal data, Baily, Bartelsman and Haltiwanger (1996) showed that the wages and productivity of new firms increase as the firm matures and ages. In other words, some of the low wage firms of today will become the high wage firms of tomorrow, and many of those that do not, will not ultimately survive. Looking at firm size and wages in isolation at a single point in time distorts the data because it does not reflect the potential impact of those firms that will grow, but are still in the throes of establishing themselves in the marketplace. It also includes static firms which will ultimately exit the marketplace because they are not really viable. Consequently, abandoning a static, cross sectional methodology leads to a conclusion that entrepreneurship creates not only greater employment, but higher wages, as well (Audretsch & Thurik, 2000).

CONCLUSION

From a global perspective, entrepreneurship is the backbone of our economies and the mandate for the wealth of our nations. It is at the very core of our existence. It is, at once the source of economic stability and the well spring of innovation. It is this uniqueness of entrepreneurship which the authors find so fascinating: its ability to provide economic stability at the same time that it propels innovation. All this from the dreams of people.

The authors' favorite expression comes from the movie, *Tucker: The Man and his Dream* In one sequence, Abe is trying to express how much Tucker has meant to him when faced with dire consequences for the company. He says: *"My Mom told me when I was little to stay away from people or you'll catch their dreams. Years later I realized I misunderstood her, germs, she said, not dreams. I got too close to you, Tucker, and I caught your dreams."* Entrepreneurs can do that: they can infect other people with their dreams. When we change economic development policy to encourage and support entrepreneurship, we will see the potential for such contagion in action. Simply reflect on what we have seen in the world to date. All around this shrinking globe we have seen the power of entrepreneurship, the true wealth of a nation. In tiny, developing nations we have seen entrepreneurship taking on the role of Prometheus and bringing fire to fuel economic growth. In formerly Communist countries we have seen entrepreneurship taking on the role of the Phoenix, rising reborn from its fiery nest to rekindle economic well-being. In our own history, we have seen a tiny band of refugees fleeing economic and religious persecution build a wilderness into a nation which covered the world with Yankee trader ships and which grew into a leader of the Western World. We have seen the war torn, repressed peoples of Europe drive their nations back from the brink of economic disaster to become dynamic, vibrant members of a new world order. In all of these stories which we have witnessed upon the stage of history, one thread appears in every weave, one constant appears in every function, one aspect appears in every population: the entrepreneurial dream. Let's remove the barriers to that dream and watch it carry our world into a vibrant future.

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DELVING INTO THE DIGITAL DIVIDE: COMPUTER USE AMONG THE SELF-EMPLOYED IN METROPOLITAN AND NON-METROPOLITAN AREAS

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Samir Shah, Penn State University

ABSTRACT

There is little question that computers and the internet are changing the way people in our society conduct business as both suppliers and buyers. While rural businesses may have the most to gain from the new marketplace opened up by communications technology, people in non-metropolitan areas frequently have lower levels of accessibility, which could lead to less use of these tools and place them at a competitive disadvantage. This study builds upon previous research on the topic by analyzing data from the March 2003 Supplement to the Current Population Survey. Respondents' answers to questions regarding computer and internet use were compared by sex and location. Overall, several differences were found between the responses of self-employed metropolitan and non-metropolitan men, while self-employed women in these locations gave similar answers.

INTRODUCTION

Many researchers (Fendley & Christenson, 1989; Frazier & Niehm, 2004; Kale, 1989; MacKenzie, 1992; Mueller, 1988; MacKensie, 1992; Osborne, 1987; Small Business Administration [SBA], 2001; Tigges & Green, 1994; Trucker & Lockhart, 1989) have concluded that businesses in rural areas of the United States face numerous economic disadvantages compared to their urban counterparts. Not only do smaller populations naturally lead to smaller markets, but per-capita income and buying power are also lower in rural areas. As more and more manufacturing and agricultural jobs are lost, many areas struggling economically (Frazier & Niehm, 2004; Lichter, 1989).

The advent of powerful communication technology is, however, changing the competitive landscape. Physical location loses its importance when purchasing and selling over the internet. Through the use of web pages, even the smallest and most remote businesses can reach a global market and compete with larger companies (Haynes, Becherer & Helms, 1998; Hormozi, Harding & Bose, 1998). Considering the limitations of the local market-for both acquiring supplies and marketing to buyers--rural business owners are likely to have the most to gain or lose from the broader world offered by online transactions.

In a study of Australian small business, Poon and Swatman (1999) found that short-term benefits of internet commerce were marginal, although many respondents found the internet useful for reducing time in searching for information. Long-term indirect effects were the key motive for continuing to engage in internet activities despite the lack of short-term benefits. A promise of future opportunities may also encourage American rural business owners to start using computer and internet technology.

In addition to the internet, technology such as word processors, spreadsheets and databases can help businesses in all areas become more efficient and competitive. This is increasingly important for small companies as large discount department stores entering rural areas, as well as non-store shopping options, have created significant competition for small business (Frazier & Niehm, 2004; Hormozi et al., 1998). Those companies that fail to take advantage of these tools are likely to be left behind.

Given the economic disadvantages historically attributed to rural areas, it is important to determine whether self-employed people in non-metropolitan are embracing technology, and possibly bridging the gap, or continuing with their old ways, thus creating even greater disparities. This study examines computer use by metropolitan and non-metropolitan business owners to determine if those in rural areas are keeping up with their non-rural counterparts. Data were obtained from the March 2003 Supplement to the Current Population Survey and cross-referenced with geographic location, sex and occupation. Usage patterns by people in different groups were compared for similarities and differences. After a brief review of the literature on rural economies, the results of this study are presented and analyzed. According to U.S. Census (2004), the terms rural and non-metropolitan are not exact synonyms, but for the purposes of this study, the words will be used interchangeably.

RURAL ECONOMIES

MacKensie (1992, p. 92) has stated that "rural areas are seen by many as being on the fringe rather than a part of the mainstream of both the economy and society." This is very likely to be true because non-metropolitan areas have historically lagged behind urban areas in their economic development. Lower populations have led not only to smaller markets, but also to decreased chances to obtain capital and support services as well as less-developed electronic and transportation infrastructures (Fendley & Christenson, 1989; Kale, 1989; MacKenzie, 1992; Mueller, 1988; Osborne, 1987; Small Business Administration [SBA], 2001; Tigges & Green, 1994; Trucker & Lockart, 1989). For example, having an airport with scheduled passenger service within 50 miles and access to interstate highway interchanges are both associated with greater earnings growth in rural areas (Aldrich & Kusmin, 1997). However, there are many areas of the United States that do not have this level of development.

Electronic infrastructure in rural areas often lags behind that of metropolitan areas. For example, internet access may be restricted to dial-up service. Although dial-up internet access is slow and possibly inconvenient, it allows anyone with a standard telephone to log onto the internet to seek information and post a web site if desired, providing more opportunities for non-metropolitan

business owners. Improvements in technology and falling prices have made computers and internet access more affordable as they have increased in speed while decreasing in cost. In fact, computer prices dropped about 12.8% between 1990 and 1994, and by over 24% between 1995 and 1999 (Kliensen, 2003). Such technology has allowed business owners to reach a broader market than their sparsely populated areas.

The lower levels of infrastructure development leading to less access to technology, combined with small markets and less access to venture capital, are likely to lead to fewer high-growth entrepreneurs in rural areas (Henderson, 2002). Entrepreneurship is especially important to rural areas because the quantity and quality of jobs in rural areas have been seriously affected by problems such as sagging rural farm economies, increased foreign competition, and decreases in rural industries (Lichter, 1989). Rural women in particular "have been an economically disadvantaged group historically" and face restricted employment opportunities (Lichter, 1989, p. 199-200).

The individual small business owner is usually the key decision maker for his or her company, meaning that person is probably responsible for the adoption of information technology (Raymond & Blili, 1997; Thong, 1999). This person's strategic orientation is likely to be related to the use of information and communications technology as the business owner seeks to develop and improve relationships with business partners and gain a competitive advantage (Raymond & Blili, 1997). The individual is also the primary decision maker in terms of the type of life the person wishes to lead. For those who value and want to maintain their unique rural way of life rather than moving to a more developed area, entrepreneurship provides an avenue for financial improvement and independence (Tosterud & Habbershon, 1992.

With its potential to allow rural business owners to expand their markets and possibly compete better within their local markets, the computers and the internet are increasingly important to business owners. This study examines this issue by comparing metropolitan and non-metropolitan business owners' responses to questions regarding their use of technology. The following sections present the methodology of this study followed by the results and analysis.

METHODOLOGY AND RESULTS

Date were retrieved from the March 2003 Supplement to the Current Population Survey through the use of Data Ferret and SPSS. Only people who were employed at the time of the survey are included in this study. The total numbers of respondents included in this study are shown in Table 1. Frequencies and percentages of people of different occupations using computers at work for particular tasks using computers and the internet are shown in Tables 2 - 9. Results of chi-squared tests are shown in each table for those activities in which there were significant differences (at the p=.05 level) in the proportions of same-sex metropolitan and non-metropolitan respondents engaging in those activities, with these statistics appearing in the columns representing the responses of each sex. Chi-square statistics are also shown for sex differences among people in the same (MSA or Non-MSA) locations.

Table 1: Total Number of Respondents by Sex, Location and Occupation

	Men			Women		
	MSA	Non-MSA	Total	MSA	Non-MSA	Total
Government	1642	502	2144	2279	817	3096
Private for profit	7369	1356	8723	6766	1389	8155
Private non-profit	536	133	669	1158	301	1459
Self-employed	1568	526	2094	924	346	1270

Table 2: Frequencies and Percentages of People Using Computers at Work to Do Word Processing

	Men				Women			
	MSA		Non-MSA		MSA		Non-MSA	
Government	1271	77.4%	410	81.7%	1936	85.0%	679	83.1%
	*Chi = 4.136 p=.042							
**MSA Chi=36.468 p=.000								
Private for profit	4883	66.3%	774	57.1%	4774	70.6%	917	66.0%
	*Chi=42.374 p=.000				*Chi=11.265 p=.001			
**MSA Chi=30.058 p=.000								
**Non-MSA Chi=23.180 p=.000								
Private non-profit	459	85.6%	104	78.2%	897	77.5%	216	71.8%
	*Chi=4.422 p=.035				*Chi=4.291 p=.038			
**MSA Chi=15.325 p=.000								
Self-employed	1172	74.7%	357	67.9%	741	80.2%	275	79.0%
	*Chi=9.447 p=.002							
**MSA Chi=9.682 p=.002								
**Non-MSA Chi=14.101 p=.000								

*Chi-square statistic for same-sex respondents in different locations (MSA or Non-MSA)
**Chi-square statistic for sex differences between respondents in same location (MSA or non-MSA)

Table 3: Frequencies and Percentages of People Using Computers at Work for Graphics or Design

	Men				Women			
	MSA		Non-MSA		MSA		Non-MSA	
Government	548	33.3%	179	35.7%	802	35.2%	296	36.2%
Private for profit	2517	34.2%	398	29.4%	1708	25.2%	300	21.6%
	*Chi=11.888 p=.001							
**MSA Chi=133.708 p=.000								
**Non-MSA Chi=21.749 p=.000								
Private non-profit	217	40.4%	47	35.3%	372	32.1%	88	29.2%
**MSA Chi=11.293 p=.001								
Self-employed	609	38.8%	195	37.0%	389	42.1%	138	40.0%

*Chi-square statistic for same-sex respondents in different locations (MSA or Non-MSA)
**Chi-square statistic for sex differences between respondents in same location (MSA or non-MSA)

Table 4: Frequencies and Percentages of People Using Computers at Work Using Spreadsheets/databases

	Men				Women			
	MSA		Non-MSA		MSA		Non-MSA	
Government	1129	68.8%	329	65.5%	1432	62.8%	536	65.6%
**MSA Chi=14.779 p=.000								
Private for profit	5208	70.7%	848	62.5%	4461	65.9%	820	59.0%
	*Chi=35.718 p=.000				*Chi=24.022 p=.000			
**MSA Chi=36.697 p=.000								
Private non-profit	391	73.0%	72	54.1%	730	63.0%	175	58.1%
	*Chi=17.696 p=.000							
**MSA Chi=16.069 p=.000								
Self-employed	1093	69.7%	344	65.4%	547	59.2%	207	59.8%
**MSA Chi=28.529 p=.000								

*Chi-square statistic for same-sex respondents in different locations (MSA or Non-MSA)
**Chi-square statistic for sex differences between respondents in same location (MSA or non-MSA)

Table 5: Frequencies and Percentages of People Using Computers at Work Using Calendar/scheduling

	Men				Women			
	MSA		Non-MSA		MSA		Non-MSA	
Government	976	59.4%	260	51.8%	1251	54.9%	432	52.9%
	*Chi=9.209 p=.002							
**MSA Chi=8.042 p=.005								
Private for profit	4514	61.3%	705	52.0%	3836	56.7%	682	49.1%
	*Chi=40.904 p=.000				*Chi=26.906 p=.000			
**MSA Chi=30.356								
Private non-profit	339	63.3%	65	48.9%	596	51.5%	161	53.5%
	*Chi=9.204 p=.002							
**MSA Chi=20.554 p=.000								
Self-employed	837	53.4%	238	45.3%	383	41.5%	126	36.4%
	*Chi=10.429 p=.001							
**MSA Chi=33.112 p=.000								
**Non-MSA Chi=6.693 p=.010								

*Chi-square statistic for same-sex respondents in different locations (MSA or Non-MSA)
**Chi-square statistic for sex differences between respondents in same location (MSA or non-MSA)

Table 6: Frequencies and Percentages of People Using Computers at Work for Email/internet

	Men				Women			
	MSA		Non-MSA		MSA		Non-MSA	
Government	1380	84.0%	432	86.1%	1889	82.9%	664	81.3%
**Non-MSA Chi=5.063 p=.024								
Private for profit	5906	80.2%	982	72.4%	4953	73.2%	890	64.1%
	*Chi=41.146 p=.000				*Chi=47.284 p=.000			
**MSA Chi=95.479 p=.000								
**Non-MSA Chi=22.026 p=.000								

Table 6: Frequencies and Percentages of People Using Computers at Work for Email/internet

	Men				Women			
	MSA		Non-MSA		MSA		Non-MSA	
Private non-profit	480	90.0%	114	85.7%	880	76.0%	211	70.1%
					*Chi=4.399 p=.036			
**MSA Chi=42.557 p=.000								
**Non-MSA Chi=11.958 p=.001								
Self-employed	1343	85.7%	423	80.4%	737	79.8%	264	76.3%
	Chi=8.162 p=.004							
**MSA Chi=14.609 p=.000								

*Chi-square statistic for same-sex respondents in different locations (MSA or Non-MSA)
**Chi-square statistic for sex differences between respondents in same location (MSA or non-MSA)

Table 7: Frequencies and Percentages of People Using the Internet to Search for Product Information

	Men				Women			
	MSA		Non-MSA		MSA		Non-MSA	
Government	1405	85.6%	440	87.7%	1878	82.5%	680	83.2%
**MSA Chi=7.003 p=.008								
**Non-MSA Chi=4.738 p=.030								
Private for profit	6275	85.2%	1163	85.8%	5514	81.5%	1132	81.5%
**MSA Chi=34.103 p=.000								
**Non-MSA Chi=9.126 p=.003								
Private non-profit	479	89.4%	118	88.7%	969	83.7%	261	86.7%
**MSA Chi=9.546 p=.002								
Self-employed	1325	84.5%	456	86.7%	785	85.0%	297	85.8%

*Chi-square statistic for same-sex respondents in different locations (MSA or Non-MSA)
**Chi-square statistic for sex differences between respondents in same location (MSA or non-MSA)

Table 8: Frequencies and Percentages of People Who Bought a Product Online Within the Last Year

	Men				Women			
	MSA		Non-MSA		MSA		Non-MSA	
Government	978	59.6%	293	58.3%	1286	56.4%	440	53.9%
**MSA Chi=3.840 p=.050								
Private for profit	4381	59.5%	715	52.7%	3715	54.9%	702	50.5%
*Chi=21.309 p=.000					*Chi=8.852 p=.003			
**MSA Chi=29.774 p=.000								
Private non-profit	351	65.5%	80	60.2%	661	57.1%	168	55.8%
**MSA Chi=10.759 p=.001								
Self-employed	960	61.2%	306	58.2%	577	62.5%	212	61.3%

*Chi-square statistic for same-sex respondents in different locations (MSA or Non-MSA)
**Chi-square statistic for sex differences between respondents in same location (MSA or non-MSA)

Table 9: Frequencies and Percentages for Using Dial-up for Internet Access

	Men				Women			
	MSA		Non-MSA		MSA		Non-MSA	
Government	1307	79.6%	444	88.5%	1846	81.1%	741	90.7%
	*Chi=20.106 p=.000				*Chi=41.167 p=.000			
Private for profit	5452	74.0%	1184	87.3%	5327	78.7%	1225	88.2%
	*Chi=111.751 p=.000				*Chi=65.317 p=.000			
**MSA Chi=43.888 p=.000								
Private non-profit	422	78.7%	113	85.0%	956	82.6%	258	85.7%
Self-employed	1167	74.4%	459	87.3%	708	76.6%	306	88.4%
	*Chi=37.356 p=.000				*Chi=21.888 p=.000			

*Chi-square statistic for same-sex respondents in different locations (MSA or Non-MSA)
**Chi-square statistic for sex differences between respondents in same location (MSA or non-MSA)

ANALYSIS AND CONCLUSIONS

Analysis of these results suggests there are some differences between in the computer and internet use of people in metropolitan and non-metropolitan areas. Within many occupations, metropolitan workers are more likely to use computers for word processing, spreadsheets/databases, calendars/scheduling, and email/internet.

These differences, however, are not simply between residents of rural and non-rural locations. Further inspection of the pattern of significant differences shows that metropolitan men are more likely than non-metropolitan men to use the computer for various reasons, while women in these various locations showed fewer differences. Sex differences were more often found among respondents in MSAs than in rural areas. This suggests that both sex and geography are crucial variables in examining the problem of the digital divide. An important area for future research will be the underlying reasons why women often have similar usage rates regardless of location, but men do not, and why there are more sex-related differences in metropolitan than in non-metropolitan areas.

Breaking the sample down into occupational groups was also useful for gaining a deeper understanding of computer usage. There were frequently differences among people in private for profit jobs, while fewer differences were found among the self-employed. However, when the sexes were compared, these differences were most often found among metropolitan respondents. For example, metropolitan men in private for-profit jobs were more likely than their non-metropolitan counterparts, and not as likely as metropolitan women in private for-profit jobs, to use word processing. Although rural women had lower word processing usage rates than non-rural women, there was no sex difference within the non-metropolitan category.

An important finding of this study was that self-employed women used computer technology at similar rates regardless of location. Among the self-employed, fewer differences were found overall, and especially among rural people and women of either location. Self-employed people used the computer for graphics/design, used the internet to search for product information and had made online purchases at similar rates regardless of sex and location, although differences were found among other groups. Self-employed metropolitan men were more likely than self-employed metropolitan women to use spreadsheets/databases, but the women in both for these areas had similar usage rates. Self-employed metropolitan men were also more likely than metropolitan women, as well as non-metropolitan men, to use email/internet, while metropolitan and non-metropolitan women had similar usage rates.

Again, future research should further examine this phenomenon to determine why rural and non-rural self-employed women behave in similar ways, while self-employed men do not. Training or other programs intended to help self-employed people may benefit from the knowledge of similarities and differences among these groups.

The finding that non-metropolitan people were more likely to have only dial-up access was expected given the lower levels of technological infrastructure in rural areas. This could place non-metropolitan businesses at a disadvantage. One opportunity that may open up to more business owners through the use of communication technology is supplying larger organizations (Haynes et al., 1998). Rural business owners would have a great deal to gain from broadening their markets to

compete for large companies' business in the business-to-business market. However, it is highly probably that these large customers will use and even require vendors to use particular technology. If rural business owners have a lower level of technology use and skills, they are likely to place themselves at a competitive disadvantage. In addition, when restricted to dial-up access, data transfer can be so slow as to be impractical, increasing this disadvantage.

One answer to this problem may be to create incentives for communications companies, thereby reducing the higher costs inherent in serving less populated areas. Some politicians have sought to even the playing field by requiring companies to serve rural areas. Several pieces of legislation such as the Broadband Internet Access Act have been introduced to congress in an attempt to encourage communications companies to serve rural or underserved subscribers (Cantos, Fine, Porcelli & Selby, 2001). However, these have yet to be passed.

This study has examined the computer use of men and women in four categories of occupations in metropolitan and non-metropolitan locations. Information and communications technology has become an important part of work, as evidenced by the proportions of people who engage in computer-related activities at work. Overall, the differences in usage rates appear to be greatest among men in metropolitan and non-metropolitan areas. Women's usage rates vary less according to geography, especially among the self-employed.

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