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LETTER FROM THE EDITOR

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

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

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.

The Editorial Policy, background and history of the organization, and calls for conferences are published on our web site. In addition, we keep the web site updated with the latest activities of the organization. Please visit our site and know that we welcome hearing from you at any time, so feel free to contact us at the address below.

Sherry Robinson, Editor
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This is a combined edition containing both Volume 14, Number 1, and Volume 14, Number 2

Articles for Volume 14, Number 1

LOOKING BEFORE LEAPING: THE EFFECT OF OWNER DECISIVENESS ON SMALL BUSINESS PERFORMANCE

John Leaptrott, Georgia Southern University
J. Michael McDonald, Georgia Southern University

ABSTRACT

This study assesses the relationship between an owner's characteristic decisiveness and the performance of his or her business in a sample of small business owners who started new childcare ventures. Decisiveness was found to be positively related to performance. This finding was contrary to expectations of a negative relationship based on prior research related to the effects that the need for cognitive closure have on decision-making processes. One possible explanation for this unexpected result is that often a somewhat intuitive decision-making process is often adequate, particularly for the less complex venture. In such a case, the additional expenditure of time and other resources required to conduct a more normative logic-based decision-making process may result in fewer of these resources being available to the venture once operations have commenced.

INTRODUCTION

The new venture founder's decisions determine the configuration of that venture. Different configurations will achieve different degrees of fit. Different degrees of fit result in differences in performance (Venkatraman & Prescott, 1990). The accuracy of decisions made to configure the venture depends in great measure on the effectiveness of information gathering, and the analytic procedures applied to that information prior to making those decisions. Therefore, "…gathering information for decision-making is a critical activity for the entrepreneur" (Cooper, Folta & Woo, 1995, p. 108). Many factors can influence the effectiveness of information search and analysis in the decision-making process.

Much small business and entrepreneurial research is based on an implicit assumption that the small business owner utilizes logic-based reasoning when making important decisions. However, business decision-making under an assumption of bounded rationality (Simon, 1955; Cyert & March, 1963) has received less research attention (notable exceptions include Cooper et al., 1995, & Busenitz & Barney, 1997). It is important to better understand how small business owners actually gather and analyze information when making important decisions about their enterprise, rather than to continue to assume that they primarily follow logic-based decision reasoning processes. The quality and quantity of their information search processes and the way in which that

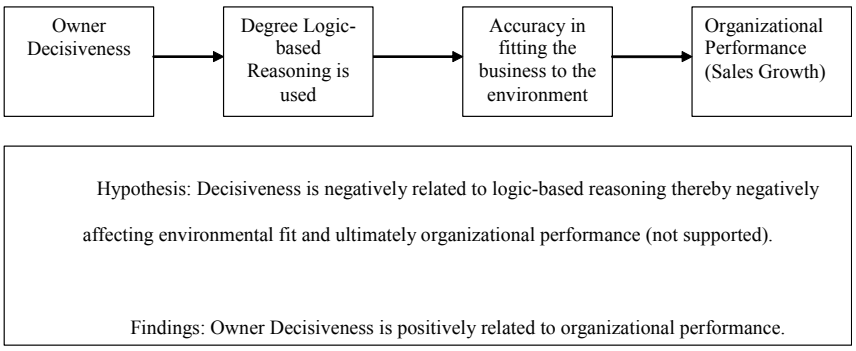
information is analyzed likely affects the accuracy of the decision-making as they configure their businesses to exploit market opportunities. Therefore, their differences in decision-making processes may influence the degree their businesses achieve a satisfactory fit with the environment. This degree of fit will be an important factor in determining organizational performance and survival.

The new venture creation process and initial period of operation can involve numerous decisions over a period of many months during which time the small business owner initially configures the venture, assesses performance and possibly reconfigures it in light of those assessments. Experimental decision-making research has provided evidence to suggest that certain individual decision-making characteristics are stable over time. If this is the case, these characteristics should affect these decisions during this period and have organizational performance consequences. This field study assesses the relationship between decisiveness, one of these individual-level characteristics, and organizational performance in a sample of small business owners who recently started new childcare ventures.

THEORY AND HYPOTHESIS

The conceptual model for this study and the findings are illustrated in Figure 1. The model is based on what Kahneman (2003), Sloman (2002), Stanovich and West (2000), Epstein (1994) and others have described as dual process theories of reasoning used in decision-making. The experiential (Epstein, 1994) or System 1 (Kahneman, 2003; Stanovich & West, 2002) method of reasoning describes a method of reasoning that is fast, automatic, effortless and affected by emotion. In contrast, the rational (Epstein, 1994) or System 2 (Kahneman, 2003; Stanovich & West, 2002) method of reasoning operates in a slow, controlled, effortful manner. Kahneman (2003) describes interaction between the two systems as a continual operation of System 1 with continual, but often lax monitoring and occasional intervention of System 2 to correct or override a System 1 decision.

Figure 1. Conceptual Model, Hypotheses and Findings



Sloman (1996) characterizes the systems as having overlapping domains that vary as a function of the individual's knowledge, skill and experience. He describes each system working within a single individual as "…two experts who are working cooperatively to compute sensible answers" (p. 6). Alternatively, the two systems may derive different solutions to a problem leaving the individual with internal conflict as to which course of action to pursue.

System 1 reasoning would likely result in rapid intuitive decision-making utilizing heuristics. System 2 reasoning would be more objective and logical.

The degree to which a small business owner uses System 2 reasoning should be positively related to the correctness of the evaluation of fit between the venture and the environment, and ultimately be positively related to performance. The reasoning system that is used can affect the rigor of information search, the way both the environment and the venture are evaluated and the decisions stemming from these evaluations. Examples of important decisions facing small business owners include specifying the basic functional aspects of the new venture and making necessary adjustments to the initial configuration during the initial period of operation such as changing the marketing activities or product or service offerings. The small business owner that uses System 2 reasoning will likely undertake more information gathering, make less use of heuristics in evaluation of the information that is gathered, consult more sources of information, and conduct more quantitative analysis than a small business owner that uses System 1 reasoning in making these decisions.

The need for nonspecific closure is a latent variable reflecting the summed scores of the five observed variables of preference for order, preference for predictability, decisiveness, discomfort with ambiguity and close-mindedness (Kruglanski, 1989; 1990a; 1990b). The overall construct is based on the notion that individuals differ in their need for "the desirability of any answer as long as it is definite" (Kruglanski & Webster, 1996, p. 263). Based on the content, psychometrics and theoretical basis of all five subscales, the decisiveness variable was determined to be the most relevant to the purpose of this study. Decisiveness is a component of the need for nonspecific cognitive closure (Kruglanski, 1989). Decisiveness is the urgency of striving for closure in judgment and decision-making (Webster & Kruglanski, 1994; Thompson et al., 1994).

An individual with a high need for closure is more likely to rely on earlier cues to form a final judgment than a person with a low need for closure. This increased likelihood is due to both an urgency tendency, "the need to seize on closure quickly", and a permanency tendency, "the desire to perpetuate closure giving rise to the dual inclination (a) to preserve, or freeze on past knowledge and (b) to safeguard future knowledge" (1996, p.265). When compared to the individual with a lower need for nonspecific closure, Kruglanski and Webster propose that the individual who has a higher need for nonspecific closure would be more likely than an individual with a lower need for nonspecific closure "…to seize and then freeze on early judgmental cues" (1996, p.278).

Kruglanski and Webster (1996, p.278) summarize the likely effects of these tendencies on decision-making behavior:

> Jointly, the urgency and permanence tendencies may produce the inclinations to seize and then freeze on early judgmental cues. A seizing and freezing sequence under heightened need for closure may (a) reduce the extent of information processing and hypothesis generation (Mayseless & Kruglanski, 1987); (b) elevate judgmental confidence (e.g. Kruglanski & Webster, 1991; Kruglanski et al. 1993; Mayseless & Kruglanski, 1987; Webster & Kruglanski, 1994); (c) focus the information search on prototypical rather than diagnostic evidence (Kruglanski & Mayseless, 1988); (d) affect the use of early cues giving rise to impressional primacy (Freund et al. 1985; Heaton & Kruglanski, 1991; Jamieson & Zanna, 1989; Kruglanski & Freund, 1983; Webster & Kruglanski, 1994); (e) induce the tendency to exhibit correspondence or overattributional biases (Webster, 1993); and (f) increase the tendency to assimilate judgments to primed constructs (Ford & Kruglanski, 1995; Thompson et al., 1994).

Thus, the individual small business owner who is more decisive may be less likely to undertake the effortful and time consuming information search and analytic activity required by System 2 reasoning. In addition such an individual would be more likely to use decision-making heuristics and be more prone to biases such as overweighting certain types of information in making an initial decision. Finally, these tendencies may make it less likely that an individual would revisit a prior incorrect decision. A reduced use of logic-based reasoning in making significant decisions should translate into lower organizational performance.

Hypothesis: *A small business owner's decisiveness is negatively related to organizational performance.*

METHOD

This study sampled the population of daycare providers licensed in Florida during 2004 and 2005. A list of licensees was obtained from the state agency responsible for monitoring and supervising daycare providers. Licensees with an assumed business name and not obviously affiliated with a nonprofit organization were selected for the sample. A small financial reward was offered for return of the completed surveys. A test mailing was sent to 403 potential subjects. Because the response rate was low (26/403 =6.5%), the primary study included a revised protocol. In the revised protocol, potential respondents from the list of Florida licensees were called and only those agreeing to participate were sent a survey for completion. A total of 1,897 calls to business owners were attempted. Nine hundred forty two calls were unable to be completed because of disconnected phone service, wrong numbers or repetitive busy signals, resulting in 955 calls completed. Two hundred ninety three potential respondents declined to participate, and fourteen

identified their businesses as owned by a non-profit organization and therefore were excluded from the sample. Thus, six hundred forty eight childcare business owners were sent surveys. A 28.9% response rate (187/648) was achieved using this revised protocol.

Approximately 45% of responding owners had no employees, 41% had 1 to 4 employees with the balance having more than 4 employees. Approximately 62% of the businesses were 2 to 4 years old, 27% were more than five years old and 11% reported being less than two years old.

MEASURES

Cooper et al. (1995) previously found a significant positive relationship between the amount of capital invested and entrepreneurial information search. Entrepreneurs that invested more capital performed more information search in the due diligence process than those that invested less capital. The present study measured this control variable with a one-item, eight choice scale with values for the amount of capital invested at the time of the first sale ranging from "under $5,000" to "$500,000 and over".

The Need for Closure Scale (Webster & Kruglanski, 1994; Kruglanski, Webster & Klem, 1993) contains five subscales: preference for order, preference for predictability, decisiveness, discomfort with ambiguity and close-mindedness. One of these subscales, decisiveness, was chosen because of its expected relevance to differences between System 1 and System 2 reasoning by small business owners. The small business owner with a high degree of decisiveness would likely make decisions more rapidly than one with a low degree of decisiveness and have less opportunity to seek less information and perform less analysis in the decision-making process. To measure this variable, this study employed a seven item, six point Likert-type scale used by Kruglanski, Webster and Klem (1993) with "strongly agree" and "strongly disagree" as anchor points. An example of one item of this scale is "I usually make important decisions quickly and confidently."

The Cronbach's alphas for Decisiveness were .70 and .79 for in the original two samples used in the Kruglanski, Webster and Klem (1993) study. This scale achieved a Cronbach's alpha of .72 in the present study. While this level of reliability is often considered marginally acceptable (Nunnally & Bernstein, 1994), the results were in line with reliabilities in the Webster and Kruglanski (1994) scale development study.

The organization-level performance related criterion variable was the percentage increase in sales from the first full year consisting of twelve full months to the second year consisting of twelve full months of operations. The single item scale measured the percentage increase in sales for these two time periods by asking the respondent to identify the increase or decrease in 10% increments ranging from a 91-100% decrease to a more than 100% increase. The instrument suggested respondents obtain this information from their tax returns thereby increasing the likelihood that their accountants reviewed the amounts used to compute the percentage change and

the sales were calculated in a consistent manner. The scale results were converted to Z-scores prior to performing analyses.

RESULTS

Table 1 reports the correlations, means and standard deviations for the variables of interest in this study. Table 2 reports the results of a hierarchical regression conducted to predict the sales growth criterion variable that reflected organizational performance . The hypothesis was tested by assessing the significance of the regression term corresponding to the predictor variable to be tested in each hypothesis.

Table 1. Correlations, Means and Standard Deviations

	Variable	Mean	S.D.	1	2
1	Initial Capitalization	1.79	1.54		
2	Decisiveness	4.50	.85	.16	
3	Percent change in sales	.00[1]	1.01	.25**	.31**

*p< .05 level (2-tailed); **p<.01 level (2-tailed) N=140 [1]Converted to Z-scores

The control variable representing the amount of initial capital invested was a significant predictor of the amount of sales growth ($t = 3.06$; $p < .01$). The hypothesis predicted that a small business owner's decisiveness would be negatively related to sales growth. Decisiveness had a significant relationship ($t=3.40$, $p < .001$) but the relationship was positive. A positive relationship was contrary to expectations.

Table 2. Results of Hierarchical Regression Analysis

Criterion: Percent Change in Sales

	Predictor Variables	B	SE_B	β	t
Step 1					
	Constant	-.30	.13		-2.33*
	Initial Capitalization	.17	.05	.25	3.06**
	ΔR^2	.06			
Step 2					
	Decisiveness	.32	.10	.27	3.40**
	ΔR^2	.07			

Table 2. Results of Hierarchical Regression Analysis					
Criterion: Percent Change in Sales					
	Predictor Variables	B	SE_B	β	*t*
Overall					
	R^2	.14			
	Adjusted R^2	.12			
	Model F	10.78***			
	N	140			
* $p<.05$ ** $p<.01$ *** $p<.001$					

DISCUSSION AND IMPLICATIONS

Small business owners make many important decisions regarding their businesses. Their decision-making characteristics are likely to affect the quality of these decisions and, ultimately, the performance of their businesses. Therefore, the significance of the relationship between their decision-making characteristics and firm performance should be assessed. The present study assessed the relationship between performance and a predictor variable related to how much or how little a small business owner would be motivated to undertake the cognitive task of information gathering and analysis prior to making significant decisions regarding their small business. Performing a significant amount of information gathering and analysis before making those decisions is consistent with a logic-based reasoning process rather than an intuitive reasoning process. Logic-based decision processes should result in more accurate decisions in many circumstances.

The present study was designed to minimize the organizational performance effects of as many other variables as possible. Data collection was limited to small business owners in a single industry to minimize industry effects. A state regulated industry that requires licensing was chosen so that the population of industry participants was relatively well defined. Participants in this industry frequently are one-owner businesses. Consequently, a single person's decision-making characteristics were likely to be involved in the decision-making process and would be related to organizational performance.

The need for nonspecific cognitive closure was hypothesized to have a significant negative relationship to performance based on the premise that an individual "…under a high (vs. low) need for closure should consider less evidence before forming a judgment" (Kruglanski & Webster, 1996, p. 268). Thus, a small business owner with a high need for nonspecific cognitive closure would utilize more intuitive and less logic-based reasoning to make key decisions about managing their venture. The small business owner with a higher need for nonspecific cognitive closure may also

be less likely to upset the state of closure he or she had previously achieved by reconsidering a previous decision. Therefore, this theory suggests that type of small business owner would likely be less likely to objectively reevaluate the fit of the venture with its environment after an initial period of operations. This decreased likelihood that the owner would objectively assess the early operation of the business should result in lower organizational performance compared to one who was more likely to reevaluate prior decisions and make any necessary adjustments.

The assessment of the relationship between need for nonspecific cognitive closure latent variable and organizational performance involved decisiveness, one of the five subscales of the instrument used to measure this latent variable. The decisiveness measure did exhibit adequate reliability. However, its relationship with organizational performance was positive rather than negative. The reasons for the unexpected positive relationship between decisiveness and organizational performance in this study are somewhat unclear and certainly deserving of further research studies that are specifically designed for that purpose.

However, other research has already addressed the effect of individual characteristics on the entrepreneurial process and may provide a better understanding of these unexpected results. Kickul and Gundry (2002) found the degree to which an entrepreneur possesses a proactive personality (Bateman & Crant, 1993) is positively correlated with the likelihood that the entrepreneur's company will pursue a prospector strategic orientation (Miles & Snow, 1978). Crant (1996) found that the proactive nature of an entrepreneur's personality is positively correlated with the strength of an individual's entrepreneurial intentions characterized as the likelihood that an individual will start a business. Entrepreneurial orientation (Lumpkin & Dess, 1996) is a firm-level variable that comprises the five individual dimensions of innovation, proactiveness, competitive aggressiveness, risk taking, autonomy. In a study of four Australian firms, Coulthard (2007) noted a consistent positive correlation between performance and the dimensions of innovation and proactiveness.

An examination of the specific items of the instrument in the present study most closely related to organization performance provides additional insight as to which characteristics had the greatest effect on organizational performance. Items in the decisiveness scale that were significantly and positively correlated with organizational performance included items that related to the respondent's self-characterization as being able to reach decisions quickly and confidently. In considering why decisiveness might be positively correlated with firm performance in the present study, the research context might be relevant. While the initial stages of all new businesses present challenges, small childcare businesses likely present fewer challenges than larger businesses in more turbulent industries. In the context of these simpler ventures, the pace of formation activity may relate to organizational performance. Many new small ventures, such as those in the service sector, have minimal financial resources. Compared to an owner that thoroughly follows the normative System 2 decision-making process involving substantial information gathering and analysis prior to making decisions, the highly decisive owner would conceivably move through the formation process quicker. A shorter decision-making period could result in a revenue stream being

established earlier and may incur less period-related costs such as occupancy costs as the period of decision-making would be shorter.

These results have implications for advisors of small business owners. The ability to assess the relevance of decision-making theory and experimental research, particularly with respect to the dual processes of reasoning, has the potential to provide useful guidance to small business owners that can improve performance and survival. In particular, the more decisive small business owner may benefit from consultations with small business advisors who can provide alternative informed viewpoints and information that may have been overlooked. These interactions have great potential value if they can improve the quality of decision-making, particularly by individuals that are more prone to making decisions intuitively. Although small business owners may exhibit decisiveness at the expense of a more comprehensive and logic-based decision process, this tendency also minimizes any adverse effects that indecision may bring. The organizational performance penalty resulting from indecision might include opportunity costs from missing the ability to fully exploit opportunities, and spending too many precious logic-based decision resources on the wrong issues. Small business advisors have the capacity to expedite the information gathering and analysis by virtue of their education and experience, thereby allowing the small business owner to be both decisive and informed.

LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

The dual process theory of reasoning has received only modest testing in experimental studies and very little testing in field studies. The methodology related to assessing the extent that each system of reasoning is being utilized is in the early stages of development. Eventually, intermediate variables reflecting alternative methods of environmental scanning and metrics of environmental fit could be included as part of a comprehensive model of decision-making related to new venture formation.

Survey-based field research involving small business owners often relies on the respondent's recollection of past behaviors, attitudes or events. In addition, busy entrepreneurs and small business owners are often reluctant to participate in survey-based data collection efforts (Newby, Watson & Woodliff, 2003; Markman, Balkin & Baron, 2002). Consequently, the length and related scope of survey instruments is limited as is the ability to assess the relationship of large numbers of variables. This often precludes the desirable use of multiple measures of a single construct.

While a focus on a single industry achieves the goal of minimizing industry effects it also potentially reduces the generalizability of the results. The relative simplicity of the industry may have reduced the beneficial effect of logic-based reasoning. Similar studies of participants in other industries will further assess the extent these variables affect small business performance.

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THE IMPACT OF OCCUPATIONAL PREFERENCES ON THE INTENT TO PURSUE AN ENTREPRENEURIAL CAREER

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ABSTRACT

The purpose of this study is to discover if occupational preferences have any bearing on whether, or not, individuals decide to pursue entrepreneurial careers. Specifically, this paper seeks to determine if cognitive occupational expectancies (concerning perceived intrinsic and extrinsic occupational rewards) significantly influence plans to undertake entrepreneurship as a primary vocation. Past theory has determined relevant entrepreneurial rewards to be (a) the intrinsic reward of independence, (b) the intrinsic reward of a satisfying way of life, and (c) the extrinsic reward of profit. Preference for each of these rewards is examined by utilizing the Valence Model of the Expectancy Theory. The Valence Model consists of two variables, Instrumentality and Valence. Instrumentality (I) concerns the belief that the attainment of work-related goals will lead to rewards; and, Valence (V) refers to the value of those rewards to the individual. The affinity for each entrepreneurial reward is posited to significantly and positively influence the formation of strong entrepreneurial intentions.

Findings indicate that individuals who perceive entrepreneurship as advantageous based on their attraction for independence and profits form stronger intentions to pursue entrepreneurial careers than others. However, those who are attracted to entrepreneurship solely based on their perceived notions of a satisfying entrepreneurial lifestyle did not form stronger intentions to start a business than others. The results did, however, affirm the moderating effect of the reward of profit, which indicates that individuals who seek challenge and excitement in their occupational endeavors (a satisfying way of life) form robust entrepreneurial intentions only when they perceive that they can earn potentially limitless, financial rewards (profits). Results, limitations, and future implications are discussed.

INTRODUCTION

A controversial issue in the research of entrepreneurs is what cognitive factor(s) significantly impact the decision to pursue the vocation of entrepreneurship over safer, more traditional, employment alternatives. The early study of entrepreneurs began with some reasonable assumptions about the psychological characteristics of entrepreneurs. However, due to the inconclusive results

of these efforts, researchers searched for more definitive cognitive-oriented constructs to explain the entrepreneur phenomenon (Shaver & Scott, 1991). Although various psychological explanations have been discarded over time, there exists support for the investigation of the cognitive processes that contribute to the instigation of new ventures. In entrepreneurship, this approach attempts to understand how the perceptions (Cooper, Woo, &Dunkleberg, 1988), cognitive and decision-making styles (Kaish & Gilad, 1991), heuristics (Manimala, 1992), biases (Busenitz and Barney, 1997), and intentions (Bird, 1988) of prospective entrepreneurs affect their behavior.

In the current study, one such cognitive process—the preference for an entrepreneurial career (as explained by the valence model component of the expectancy theory of motivation)—is posited to be fundamental to the favorable intention to engage in entrepreneurial activities. This is important because intent is a dependable predictor of human behavior in an assortment of circumstances, including entrepreneurship, and has been deemed by many to represent the most successful forecaster of human action (Ajzen, 1991; Ajzen & Fishbein, 1980; Krueger, 1993; Krueger, 2000). Moreover, past research (Kim & Hunter, 1993) found that intentions explained sixty-seven percent of the variance in behavior and path analysis confirmed that the association between attitudes and behavior is fully explained by the attitude—intention and intention—behavior links (Krueger, 2000). Therefore, this study is an attempt to demonstrate a possible link between career expectancies and entrepreneurial behavior (as expressed through robust entrepreneurial intentions). The next section will review the literature on the expectancy theory of motivation and will detail its relevance for the study of entrepreneurs

LITERATURE REVIEW

The mere presence of appropriate personality traits that render an individual intrinsically suited for venturing does not guarantee entrepreneurial behavior (Shaver & Scott, 1991). Kirzner (1973) stressed that entrepreneurs are not only those that discover market opportunities, but also that they must act upon these prospects whenever possible. Accordingly, the purpose of cognitive process studies in entrepreneurship is to explain the mechanism of consideration that results in such action.

Based on Kirzner's rationale, it may be reasoned that a defining factor for prospective entrepreneurs is likely the willingness to pursue favorable opportunities once they are exposed. In this context, only those individuals who are motivated enough to pursue entrepreneurial careers, in deference to other possible choices (e.g., traditional employment), can be considered entrepreneurs. The problem, however, is that there exists no consistent explanation of the mechanism of motivation for the exploitation of these tenuous opportunities (Ripsas, 1998). Therefore, this study advances the idea that a likely explanation for entrepreneurial stimuli can be significantly linked to occupational preference for an entrepreneurial career as specified by the valence model component of the expectancy theory (Vroom, 1964).

Expectancy Theory and Occupational Preference

According to the expectancy theory of motivation, individuals are rational, they understand the possible consequences of their actions, and make selections among options based on a merger of the value of the outcomes and the probability that the outcomes will be achieved (Gatewood, 1993). It is proposed, in this study, that the cognitive process of forming occupational preferences, delineated by the valence model of Vroom's (1966) expectancy theory of motivation, closely identifies that which is practiced by entrepreneurs. Entrepreneurs make rational assessments, based on the satisfaction of their needs and potential outcomes (rewards) of their efforts, which result in a decision whether, or not, to initiate entrepreneurial behavior or to seek safer, more traditional, employment means.

Expectancy theory is divided into a multiplicative model containing four different constructs: 1.) Effort-performance expectancy, 2.) Performance-outcome expectancy, 3.) Valence, and 4.) Instrumentality (Campbell & Pritchard, 1976; Lawler, 1973; Nadler & Lawler, 1979). Effort-performance expectancy (EI) refers to the individual's perception of the amount of effort required for successful task completion. Performance-outcome expectancy (EII) refers to the belief that successful task completion will lead to desired outcomes. Instrumentality (I) is the belief that the attainment of outcomes will lead to other desired outcomes. Valence (V) refers to the value of the outcome(s) to the individual.

Expectancy theory and parts of the expectancy model have been used to explain generalized behavior in organizations as well as occupational preference (Campbell et al, 1970; Lawler & Suttle, 1973; Mitchell, 1974). As one of the two major initial expectancy model divisions presented by Vroom (1964), the valence model was described as being useful for the prediction of an individual's attraction (valence) for specified outcomes, which were identified as occupational preference and job satisfaction (Mitchell, 1974). As such, it is the part of the full expectancy model that revolves around a person's attractiveness for possible occupational outcomes and the perceived likelihood that one can attain these outcomes in the applicable occupation. As it relates to this study, preference for an entrepreneurial career is defined as the attractiveness of the possible rewards of entrepreneurship and the magnitude of one's belief that these rewards can be obtained (Vroom, 1964; Mitchell, 1974). Therefore, the valence model (*Summation*(VI)) is a multiplicative function of the valence of possible entrepreneurial outcomes (rewards) and the instrumentality that the occupational choice (entrepreneurship) will lead to these valuable outcomes.

The Valence Model of the Expectancy Theory

The first academician to apply expectancy theory to organizational behavior was Vroom (1964). He initially offered two models, the first for prediction of valences of outcomes (the valence model), and the second for prediction of force toward behavior (work-force model). Valence is

defined as the value of the outcome(s) to the individual (Campbell & Pritchard, 1976) and is the focus of Vroom's (1964) valence model. The valence model suggested that the value of an outcome to an individual is a function of the algebraic sum of the products of the valences (of all other outcomes) and the person's thoughts regarding the specific outcome's instrumentality for attaining those other outcomes (Mitchell, 1974). Correspondingly, instrumentality was defined by Vroom (1964) as the degree to which an individual perceives a specific outcome as leading to the attainment of other outcomes. Instrumentality varies from negative one to positive one. A negative instrumentality indicates that the individual believes that the outcome in question never leads to other outcomes while a positive instrumentality denotes the opposite. The formula of the valence model is displayed symbolically as follows (Mitchell, 1974):

$$Vj = \sum_{k=1}^{n} (VkIjk)$$

where

Vj = the valence of outcome j;
Ijk = the perceived instrumentality of outcome j for the attainment of outcome k;
Vk = valence of outcome k;
n = number of outcomes.

While it is assumed that the valence model is predictive of any outcome, it has most frequently been related to investigations of job satisfaction and occupational preferences (Mitchell, 1974).

Valence Studies

The results of valence studies (occupational preference or job satisfaction) that use the expectancy theory have been extensively reviewed in the literature. Mitchell (1974) found that almost every test of the valence model produced strong significant findings. This view hasn't changed much. The valence model was described by Vroom (1964) as being useful for the prediction of an individual's attraction (valence) for specified outcomes, which were identified as occupational preference and job satisfaction (Mitchell, 1974). As such, the first study using the valence model (Vroom, 1966) involved the prediction of occupational preferences of individuals that had to choose from fifteen different vocational alternatives. Each occupation was rated separately on a scale of one to eleven and Vroom (1966) showed clearly, based on calculated valence indexes, that those occupations that held the most attraction also were rated highest. This finding was significant because it showed that the valence model could accurately predict occupational preferences. A similar study by Wanous (1972) had test subjects rank-order occupations and then employed the use of a binomial test to measure the relation of the ranks to their valence scores.

Reported findings were that the valence indexes were significantly related to the occupational rankings, which confirmed the usefulness of the valence model to predict occupational preferences. Thus, initial positive validity for the valence model was encouraging.

Bartol (1976) compared the occupational preference predictive power of Vroom's (1964) expectancy (valence) model to that of an alternative configuration. They were both utilized to test whether either could predict the occupational preferences of a sample of female business and psychology students. Subjects were surveyed through the use of written questionnaires that contained scales relating to occupational attitudes, future career plans, instrumentalities, and motivation. The data generally supported the validity of the expectancy theory and that of the competing model, since both were significantly able to predict occupational preferences. However, the correlation between Vroom's (1964) expectancy model and occupational preferences was stronger than the correlation obtained by the competing model.

In a study by Teas (1981), an investigation was carried that tested assumptions regarding the association between an individual's job valence and his or her perceptions of job preference and anticipated job satisfaction. A within-subject analysis was used to investigate the predictive validity of five alternative forms of a valence model. While strong support was found for the traditional Vroom (1964) valence model and several alternatives, no evidence was found to indicate that any of the alternative models were superior in the prediction of occupational preferences.

Wanous, Keon and Latack (1983) performed a meta-analysis on sixteen within-subjects studies (published between 1966 and 1981) to gauge if prior expectancy theory research accurately predicted how individuals chose occupations or organizations. Their investigation revealed that the average within-person correlation for valence indexes and measures of occupational and organizational attractiveness (preference) was strong (0.72). Also, the review dealt with actual, rather than hypothetical, occupational and organizational choices. To this end, the hit rate of actual occupational/organizational choice when compared to expressed preferences was reported at 63.4 percent. After the meta-analysis, the authors presented a method of weighting valence and instrumentality as a way to combine the variables in the valence model while avoiding the questionable procedure of multiplying non-ratio scale variables. Each subject in the study assessed the valence of fifteen outcomes by sorting them into three categories of five items each (low, medium, high). Instead of multiplying each valence measure with a corresponding instrumentality perception score, as is usually done, the item identifying number (e.g., 1 to 15) for each subject's high-medium-low valence category was recorded and corresponded with each subject's instrumentality response per item. This manipulation formed three scales of five instrumentalities each: (1) the five instrumentality perceptions those outcomes rated most important, (2) those five of medium importance, and (3) those five of least importance. While there was no multiplication of non-ratio numbers, a selection of instrumentality responses was accomplished by using the valence ratings. The proposed "implicit weighting" weighting method was used in a study of business graduates choosing an M.B.A. degree program, to measure if the modified expectancy

model could accurately predict their preferences. The new weighting method was found to improve empirical support for the model without using the non-ratio scale variables and, thus, strengthened the validity of the multiplicative propositions of the expectancy theory.

Rynes and Lawler (1983) examined the effect of expectancies on the decision to pursue job alternatives. The researchers used two different methodological approaches, policy capturing and narrative self-reports, to examine how people merge information about work characteristics and the probability of getting job offers (expectancies) in their decision to pursue employment opportunities. Test subjects assessed twenty-four hypothetical job alternatives at several expectancy levels in terms of general attractiveness and whether, or not, they would apply for a job. An assortment of within-subject tests (logistic regression, ANOVA, cross-tabulation, graphical analysis, and the examination of narrative self-reports) were employed to deduce how the possibility of receiving a job offer affected the propensity to submit an application for a job. Study results showed that there was no standard mechanism in the way expectancies biased job seeking behavior because the small likelihood of receiving a job offer acted as a greater search impediment for some individuals than for others. Furthermore, whether or not low expectancies depressed search efforts seemed to depend on other factors, such as the cost of job search activity and the valence for the particular employment opportunity. Therefore, it was concluded that there might be many situation specific sources of individual disparity in expectancy usage that are not gauged by the expectancy model.

A more recent meta-analysis (Van Eerde & Thierry, 1996), which compared 77 independent expectancy studies examining a wide variety of occupations and job tasks, concluded that the criterion variables that relate more strongly to the traditional expectancy model and components appear to be attitudinal (intentions and preferences) rather than behavioral. In fact, it was observed that various components of the expectancy model predicted preference and behavior as well as the full model. For example, occupational preference, choice, and intent, are independently and significantly predicted by the valence model (*Summation*(VI)) and instrumentality (I), respectively. Therefore, it is possible to use relevant components of the model to predict specific attitudes and behavior (Van Eerde & Thierry, 1996) as opposed to the full model.

In summary, while the numbers of studies that employ variations of the expectancy theory valence model have dwindled in recent times, it is still considered a useful framework for predicting occupational preferences and job satisfaction.

Possible Relevance of the Expectancy Theory to Entrepreneurship

While it has been demonstrated that the expectancy theory is a useful tool to measure behavioral motivation and occupational preferences, it has rarely been used, empirically, to gauge the level of occupational preference (valence) of prospective entrepreneurs (Brice, 2006). This is curious considering the potential utility of the valence model for entrepreneurs. Olsen and Bosserman (1984) introduced the concept of expectancy theory to the field of entrepreneurship by

stating that other approaches (hierarchy of needs and need for achievement theories) were too specific to be able to explain the motivating mechanisms for every entrepreneur. In their application of the expectancy theory, individuals were assumed to differ regarding needs and goals and people were expected to determine the course of their behavior based on satisfying those needs and desires. Since expected outcomes (rewards) are considered when weighing choices about alternative career plans, individuals will be inclined to expend effort on those behaviors that are expected to result in the attainment of need-satisfying outcomes. What can be assumed, in a general context, is that an individual, who is attracted to the perceived outcomes of an entrepreneurial career, will be motivated to initiate entrepreneurial behavior if such effort is reasonably expected to result in their acquiring these valuable second-order rewards.

There are three potential reward categories that are posited to influence individuals to pursue entrepreneurial careers—the rewards of profit, independence, and a satisfying way of life (Reynolds, P, 1988; Longenecker, Moore, & Petty, 2000). First, the reward of profit is the entrepreneur's expectation of earning a yield that will recompense them for the time and capital that they have devoted as well as for the risks and initiative they take in running the business. This reward is deemed the primary basis for initiating any profit-making enterprise. Without the hope of profit, there is no entrepreneurial opportunity (Kirzner, 1973). Second, the reward of independence is the expectation of freedom from supervision, rules, and bureaucracy (Reynolds, P, 1988; Longenecker, Moore, & Petty, 2000). This reward is symptomatic of an entrepreneur's desire to be one's own boss and experience the autonomy of pursuing whatever course holds personal interest. The reward of independence is attained and sustained as a result of profitable venturing. Lastly, the reward of a satisfying way of life is the expectation of freedom from routine, boring, and unchallenging jobs (Reynolds, P, 1988; Longenecker, Moore, & Petty, 2000). This expectation is characteristic of entrepreneurs who view their businesses as tools of pleasure instead of work. This is a common sentiment among entrepreneurs who use their businesses as an instrument for self-expression and self-actualization (Scarbourough & Zimmerer, 2000) by using profits and products to contribute to important societal causes while making a good living. It is proposed that these three categories of rewards are the active agents of expectancy theory (valence) cognitions within potential and actual entrepreneurs. In this conception, the expectancy theory (valence model) is posited to be general enough to apply to all entrepreneurs. It does not attempt to delineate all of the specific needs that influence behavior because of the differences of each individual. It does, however, identify universal categories of considerations (valences and instrumentalities) that are cognitively processed to determine individual behavior over the course of time.

In summary, there exists virtually no empirical expectancy theory research on actual or prospective entrepreneurs. While there have been a few theory driven proposals pertaining to the association of expectancies to the entrepreneurial decision-making process (Olsen & Bosserman, 1984; Gatewood, 1993), quantitative analyses need to undertaken to validate forecasted relationships.

Entrepreneurial Career Preference (Based on Intrinsic and Extrinsic Work-related Rewards) and Entrepreneurial Intentions

After examination of the three entrepreneurial occupation preference dimensions, it is apparent that preference for an entrepreneurial career may be further delineated as being based on the calculation of an individual's extrinsic and intrinsic entrepreneurship-related valence scores. Brief & Aldag (1977) identified the difference between extrinsic and intrinsic work-related outcomes, which form the basis of entrepreneurial career preferences. An intrinsic work-related reward is an object or event received or experienced by an individual during the performance of tasks related to the occupation. These are rewards that are internally generated and self-appreciated. Intrinsic work rewards do not require the involvement of sources external to the task-person situation to be produced. Conversely, an extrinsic work-related reward is an object or event received or experienced following the completion of tasks related to the occupation. The delivery of an extrinsic reward is reliant on sources outside of the task-person situation to take place. Based on these definitions, the three main rewards of an entrepreneurial career can be categorized thusly:

1. The Reward of Profit: This occupational reward may be considered extrinsic because profit is a tangible outcome of vocational performance, which is dependent on the involvement of a source external to the immediate task-person situation to take place.

2 & 3. The Rewards of Independence and a Satisfying Way of Life: These rewards may be considered intrinsic because personal feelings of independence, autonomy, challenge, and excitement may be realized during the performance of entrepreneurial tasks. Neither of these rewards is dependent on the involvement of external sources to be realized.

Entrepreneurial career preferences (based on the rewards of independence, a satisfying way of life, and profit) are expected to predict entrepreneurial intentions. The conceptual framework for this proposition is based on Vroom's (1966) expectancy theory. The expectancy theory of motivation suggests that individuals will make rational choices (intent) to initiate behavior after an assessment of the value of the outcomes of the behavior and the likelihood that the outcomes will be attained (Gatewood, 1993). Since expectations are considered when weighing choices about alternative occupational plans, individuals will be inclined to expend effort on those behaviors that are expected to result in the attainment of need-satisfying outcomes. What can be assumed, in a specific context, is that an individual will develop entrepreneurial intentions if such effort is expected to result in valuable occupation-related rewards. These occupation-related rewards may be categorized as being either intrinsic or extrinsic (Brief & Aldag, 1977). The relevant outcomes that drive the preference for an entrepreneurial career is based on the prospect that the attempt to

start a new venture will result in profit (extrinsic), independence (intrinsic), or a satisfying way of life (intrinsic) (Reynolds, P, 1988; Longenecker, Moore, & Petty, 2000). It is, therefore, proposed that these three categories of rewards are the active agents of latent entrepreneurial intentions and are the driving forces behind entrepreneurial behaviors. Thus,

Hypothesis 1: The Preference for an Entrepreneurial Career based on occupational reward perceptions of (a) Independence, (b) a Satisfying Way of Life, and (c) Profit are positively related to the formation of Entrepreneurial Intentions.

The Possible Moderating Effect of the Extrinsic Reward of Profit on the Intrinsic Reward of a Satisfying Way of Life

The intrinsic reward of a satisfying way of life is an entrepreneurial incentive that may be specified as "freedom from routine, boring, and unchallenging jobs" (Longenecker, Moore, & Petty, 2000: page 6). As such, it is the least definitive of the three main rewards of entrepreneurship that may be identified as uniquely entrepreneurial. In comparison, the reward of profit represents freedom from the limits of regular financial payments (wages), including the possibility of attaining wealth, and the reward of independence is indicative of a being one's own boss, making decisions, taking risks, reaping the rewards, and having an opportunity to direct others (Longenecker, Moore, & Petty, 2000). Both of these rewards may easily be identified as being almost exclusively related to the vocation of entrepreneurship as opposed to other occupations. However, there exist many other occupations, besides entrepreneurship, that possess challenging and non-routine job characteristics (reward of a satisfying way of life). For example, the occupations of corporate manager, fire fighter, carpenter, and university professor are all examples of professions that may also deliver the reward of a satisfying way of life.

In this study, it is expected that the relationship of entrepreneurial career preference based on the intrinsic reward of a satisfying way of life and the formation of entrepreneurial intentions may be heightened significantly when moderated by entrepreneurial career preference based on the, uniquely entrepreneurial, extrinsic reward of profit. The vocation of entrepreneurship is unique because, in many instances, the sole mode of compensation is company profits. New venturing requires that entrepreneurs invest significant amounts of time, resources, and equity until profits are realized (Longenecker, Moore, & Petty, 2000). Therefore, in order for an individual to form stronger entrepreneurial intentions than others when he or she is attracted to occupations that are challenging, non-routine, and exciting (satisfying way of life), he or she should also possess a preference for reasonable, to possibly limitless, profits in favor of regular (limited) wages. Only then, it is estimated, is the occupational preference of the individual uniquely entrepreneurial. Therefore, it is posited that after the interaction of career preference based on these two rewards, the

relationship of preference for an entrepreneurial career based on the intrinsic reward of a satisfying way of life and the formation of entrepreneurial intentions will be strengthened. Thus,

Hypothesis 2: The existence of positive perceptions about the extrinsic Reward of Profit will moderate the relationship between the Reward of a Satisfying Way of Life and Entrepreneurial Intentions. That is, this relationship will be strengthened significantly.

METHODOLOGY

Sample Description and Data Collection

There is disagreement among scholars as to what types of samples are most appropriate for studies of entrepreneurial intent and behavior. Gartner (1989) proposed that a common weakness of studies into the predictors of entrepreneurial intentions is the failure of investigators to choose samples that are (1) comprised solely of people who are serious about entrepreneurship and (2) who are in the process of making the decision to become involved in creating a new business. Most analyses contain samples of individuals who have already initiated a going concern or are comprised of graduating university students who may or may not be earnest about their desire to pursue an entrepreneurial career. The lack of a direct correspondence between individuals who have outwardly chosen entrepreneurship as a vocation and their entrepreneurial intentions is thought to weaken the robustness of study findings. More recently, however, academicians have formed a contradictory view. Krueger, Reilly and Carsrud (2000) find that studies comprising samples of upper-division college students can uncover occupational inclinations at a time when respondents are wrestling with important career decisions. Such samples undoubtedly include subjects with a wide range of intentions and attitudes toward entrepreneurship. Due to the sensitivity of intentional processes to initial conditions (Kim & Hunter, 1993), it is important for researchers to study the onset of entrepreneurial phenomena before they occur. More precisely, study samples should include individuals who have not yet made a conscious decision to initiate new ventures. The sampling of only successful, current, or openly prospective entrepreneurs (e.g., college students majoring in entrepreneurship) introduces biases that subjugate data unpredictably, especially for rare phenomena (Krueger, Reilly, & Carsrud, 2000). While the exact details of a business may have not yet come together in the minds of most general upper-class college students, global career intentions should have (Scherer, Adams, Carley, & Weibe, 1989). Therefore, it is acceptable and appropriate to investigate entrepreneurial intent utilizing a sample of upper-class college students. It is important to note that the population of interest in this study consists of individuals who perceive that they will become entrepreneurs and not necessarily only those who will actually become entrepreneurs. This distinction is important because while behavior has been demonstrated to be

predicted by intentions (Kim & Hunter, 1993), the focus of the current investigation remains at the entrepreneurial intentions level of analysis.

The sample for this study consisted of undergraduate business students who were nearing graduation, graduate business students, and professional degree program students. When students contemplate graduation, they may also develop immediate career plans and long-range goals. The most relevant college students are those from the business disciplines because, based on their discipline interest, these students have already decided to pursue business-related careers. There are, however, students in other schools and departments within the university where generalized business intentions might reside. For example, students majoring in architecture, veterinary and human medicine, engineering, construction science, and others may harbor the intent to initiate entrepreneurial ventures that lie within their specialized fields of interest. It is possible that even those who do not foresee immediate entry into entrepreneurial careers within specialized fields might harbor long-range entrepreneurial career goals. For that reason, a diverse sampling of college students (including some not studying a business discipline) was included in this study.

The study sample consisted of 404 students from a large southeastern university who participated utilizing an online, self-report data collection methodology. Subjects consisted of upper-level business undergraduates and Master of Business Administration (MBA) students in the concentrations of marketing, management, and accounting and professional-degree students from the College of Veterinary Medicine (CVM).

Upper-level undergraduate students in business, along with those pursuing the MBA, were appropriate primarily because their academic concentration implied that they had serious interest in pursuing a business career. Also, they were likely to offer a more informed range of interest in terms of business careers than students majoring in the sciences, liberal arts, humanities, or education. Since the intent to become an entrepreneur is a business career-related decision process, these upper-level business students offered a sample that was currently involved in such a process.

Veterinary students were appropriate for this study because the nature of their intended profession lends itself easily to the practice of entrepreneurship. In fact, the norm for success in the field of veterinary medicine is the ownership of a private practice. A recent report compiled by the three major veterinary associations in the United States demonstrates that of the approximately 64,000 veterinarians employed in the year 1997, 82% worked in private practice (Brown & Silverman, 1999). Thus, the tendency for veterinarians to become independent business owners is well established.

Data was collected using an online survey methodology. The researcher contacted students directly via mass targeted e-mail messages originating from the office of their academic major department. A website was developed so that the students could complete the survey questionnaire online. Each questionnaire was designed to collect data on all of the proposed variables of interest.

After exclusion of subjects with duplicate submissions and those whose survey questionnaires were only partially completed, the final sample totaled 351 individuals. This sample

was equally represented between the genders, consisting of 175 (49.8%) males and 176 (50.2%) females. Subjects were primarily graduating undergraduate business seniors (71.2%) and 21 to 23 years old (71.1%). In fact, there were more CVM students (16%) than MBA students (12.8%). The majority of subjects were Caucasian (White) (83.7%) with the next significant representation being Black (11.4%), which is in accordance with national population percentage demographics.

Measures

Preference for an Entrepreneurial Career

Preference for an entrepreneurial career is defined in this study as the attractiveness of the possible rewards of entrepreneurship and the magnitude of one's belief that these rewards can be obtained as an entrepreneur. As such, this multidimensional construct is represented by the extrinsic reward of profit, and the intrinsic rewards of independence and a satisfying way of life (Table 1). These perceptions are envisioned within the valence model of the expectancy theory (Vroom, 1964; Mitchell, 1974), which has been validated for use to discern occupational preferences. It is a multiplicative function of the valence of entrepreneurial outcomes and the instrumentality that the occupational choice (entrepreneurship) will lead to second-level outcomes.

$$V_j = \underset{k=1}{\overset{n}{Summation}}(V_k I_{jk})$$

where

V_j = the valence of outcome *j* (occupation *j* is a first-level outcome);
I_{jk} = the perceived instrumentality of outcome *j* for the attainment of second-level outcome *k*;
V_k = valence of outcome *k*. This outcome, which is the result of obtaining first-level outcome *j*, is defined as a second-level outcome;
n = number of outcomes.

The three scales that represent the multidimensional construct were examined in a pilot study that was conducted prior to the main analysis. Since the scales were developed from new measures, there exist no historical reliability indices to report. However, the pilot study demonstrated that the Cronbach's alpha reliability estimates of .78, .76, and .83 were reported for the rewards of profit, independence, and a satisfying way of life, respectively, for an unrelated sample of 349 business school students.

Valence of Outcomes

Second-level outcome valence is defined as the strength of the individual's affective orientation (positive or negative) toward the outcome (Mitchell, 1974). Using scaling procedures adapted from Teas (1981) and Bartol (1976), eleven potential rewards (second-level outcomes) of an entrepreneurial career were measured on a 5-point Likert scale ranging from extremely undesirable (-2) to extremely desirable (+2). The list of potential second-level outcomes was adapted from previous research (Teas, 1981; Bartol, 1976) and theory (Longenecker, Moore, & Petty, 2000).

Instrumentality

Instrumentality pertains to the degree to which the occupational choice alternative is instrumental in leading to, or detracting from, a second-level outcome. According to Vroom (1964) this variable can range from fully negative to fully positive. Consequently, this variable was measured by eleven items on a 5-point Likert scale ranging from extremely unlikely (-2) to extremely likely (+2).

Entrepreneurial intention

Entrepreneurial intention is defined in this study as the aspiration to start a business as exemplified by the level of preparation to do so. This is consistent with Behave's (1994) proposition that starting a business is best indicated by behavior that shows commitment to its physical creation. Five questions adapted from Chen, Greene, and Crick (1998) was used to assess entrepreneurial intentions (Table 1). Responses were gathered on a 5-point Likert scale and total scale score was obtained by averaging the five questions. The original authors reported a Cronbach's alpha of .92 for this scale, which implies strong reliability.

Demographic and Background Information

Information pertaining to each respondent's age, gender, ethnicity, and class was obtained to use as control variables in the analysis. Each of these control variables was recorded as non-continuous, categorical predictors.

Table 1: Scales Used in the Current Study
Preference for an Entrepreneurial Career
(5-point Likert-type scales: (*Valence x Instrumentality* for each indicator))
Reward of Profit (PROF)
(*Valence*: How much do you desire each of the following rewards, opportunities, and outcomes? - Extremely Undesirable to Extremely Desirable)
(*Instrumentality*: Rate how likely it is that being an entrepreneur (independent business owner) can lead to someone attaining each listed reward, opportunity, or outcome? - Extremely Unlikely to Extremely Likely).
1. Making enough money to meet my needs.
2. Opportunity to get rich.
3. Earning a profit that will justify investments of time, money, and risk.
4. Opportunity to make as much money as I want.
Reward of Independence (IND)
(*Valence*: How much do you desire each of the following rewards, opportunities, and outcomes? - Extremely Undesirable to Extremely Desirable)
(*Instrumentality*:Rate how likely it is that being an entrepreneur (independent business owner) can lead to someone attaining each listed reward, opportunity, or outcome? - Extremely Unlikely to Extremely Likely).
1. Freedom from supervision.
2. Opportunity to direct others.
3. Opportunity to be my own boss.
Reward of a Satisfying Way of Life (SAT)
(*Valence*: How much do you desire each of the following rewards, opportunities, and outcomes? - Extremely Undesirable to Extremely Desirable)
(*Instrumentality*: Rate how likely it is that being an entrepreneur (independent business owner) can lead to someone attaining each listed reward, opportunity, or outcome? - Extremely Unlikely to Extremely Likely).
1. Exciting work.
2. A challenging career.
3. Freedom from a routine, repetitive job.
4. Freedom from a boring job.
E*ntrepreneurial Intention (INTENT)*
(5-point Likert-type scales: adapted from Chen, Greene, and Crick, 1998)
1. I am interested in setting up my own business.
2. I have considered setting up my own business.
3. I am preparing myself to set up my own business.
4. I am going to try hard to set up my own business.
5. How soon are you likely to set up your own business?

ANALYSIS AND RESULTS

Hierarchical regression was the principal technique of analysis used to assess the hypotheses in the investigation. All relevant variables were standardized prior to regression analyses. Cohen and Cohen (1983) suggest this method is most important when independent variables possess a theoretically based casual priority, as in this study.

The study was conducted in one phase (Table 2). A three-step series of regression equations were employed with entrepreneurial intentions as the dependent variable. First, demographic indicators were entered into the regression equation to remove their influence on the variables of interest. Next, the hypothesized positive relation between preference for an entrepreneurial career (based on the rewards of independence, a satisfying way of life, and profit) and the formation of entrepreneurial intentions [H1(a-c)] was tested. Last, an investigation into the proposed moderating effect of entrepreneurial career preference based on the extrinsic reward of profit on preference for an entrepreneurial career based on the intrinsic reward of a satisfying way of life (H2) was accomplished.

Table 2: Outline of the Hierachical Regression Analysis

Regression	Dependent Variable	Independent Variables Entered
Phase 1	Step 1 Entrepreneurial Intentions	Gender, Race, Class, Age
	Step 2 Entrepreneurial Intentions	IND, SAT, PROF
	Step 3 Entrepreneurial Intentions	(SATxPROF)

IND: Reward of Independence
SAT: Reward of a Satisfying Way of Life
PROF: Reward of Profit
(SATxPROF): Interaction of Rewards of a Satisfying Way of Life and Profit

Basically, it was expected that those who perceived entrepreneurship as desirable (due to the autonomy, challenge and excitement, and profit potential of the vocation) would form stronger intentions to start a business than those who did not. In addition, it was further projected that the perceptions about the likelihood of earning reasonable, to potentially limitless, profits as an entrepreneur would make the prospect of entrepreneurship significantly more attractive to individuals seeking excitement and challenge, and, thus, enhance the relationship between preference for an entrepreneurial career based on the reward of a satisfying way of life and entrepreneurial intentions. Step one of the analyses included gender, race, educational classification, and age as independent variables and entrepreneurial intentions as the dependent variable. The results (Table 3) of this initial regression equation ($F = 7.881$, $p < .001$) indicated that gender (*beta* = -.278; $p < .001$) and educational classification (*beta* = .138; $p < .05$) were significantly related to entrepreneurial intentions. On closer inspection, these results may be

interpreted as demonstrating that the women in the sample being significantly less likely, and those in higher educational classifications being significantly more likely, to form entrepreneurial intentions than others.

Table 3: Hierarchical Regression Analysis

Regression	Dependent	Independent Variable	Beta	F	R^2	R^2 (Change)	Partial F
Step 1	Entrepre-neurial Intentions			7.881***	.084	.084	7.88***
		Gender	(.278)***				
		Race	(.012)				
		Class	.0138*				
		Age	.035				
Step 2	Entrepre-neurial Intentions			13.053***	.210	.127	18.3***
		IND	.280***				
		SAT	(.60)				
		PROF	.199***				
Step 3	Entrepre-neurial Intentions			12.06***	.220	.010	4.283*
		(SAT x PROF)	.220*				

N = 351
* p < .05
** p < .01
*** p < .001
( ) Negative relationships

IND: Reward of Independence
SAT: Reward of Satisfaction
PROF: Reward of Profit
(SATxPROF): Interaction of Rewards of a Satisfying Way of Life and Profit

Preferences for an entrepreneurial career based on the rewards of independence, a satisfying way of life, and profit were added in step two. The results supported the proposed positive relationship between entrepreneurial career preferences, based on independence (*beta* = .280; p < .001) and profit (*beta* = .199; p < .001), and entrepreneurial intentions (*change in* R-squared =.127, p. < .001) [H1(a),(c)]. However, the expected positive relation between the preference for an entrepreneurial career based on the reward of a satisfying way of life and entrepreneurial intentions [H1(b)] was not affirmed (*beta* = .060; p > .05) (SEE Table 3).

In the final step, the interaction of entrepreneurial career preferences based on a satisfying way of life and profit was added. The results supported the proposed moderating effect of the reward of profit on the relationship between preference for an entrepreneurial career based on the reward

of a satisfying way of life and the formation of entrepreneurial intentions (*beta* = .220; *change in* R2 =.220, $p < .05$)[H2].

The significant moderating effect that the reward of profit has on the relationship between entrepreneurial career preference (based on the reward of a satisfying way of life) and entrepreneurial intentions may be explained in that it may be observed that individuals who crave an exciting, non-routine (satisfying) lifestyle form stronger entrepreneurial intentions than others only when accompanied by the heightened preference for the reward of profit. Conversely, individuals who are attracted to entrepreneurship for the satisfying lifestyle, but, without corresponding high preferences for earning profits do not form strong entrepreneurial intentions than others. In fact, individuals with low profit motives decrease the incidence of entrepreneurial intent formation as they increase their attraction for satisfying lifestyles. Similarly, the interaction may be explained from the view of preference for an entrepreneurial career based on the reward of profit. It is demonstrated that individuals with little preference for profits, but high preference for satisfying lifestyles, do not form stronger entrepreneurial intentions than those who prefer to avoid challenge and excitement (unsatisfying lifestyles). However, as preference for the reward of profits rise, those with higher satisfying lifestyle desires form significantly stronger entrepreneurial intentions than others. Thus, the significance of the moderation effect of entrepreneurial career preferences based on the rewards of profit and a satisfying way of life is affirmed.

DISCUSSION

The results of the analysis supported the concept that those who perceive entrepreneurship as advantageous based on the independence of the vocation form stronger intentions to pursue entrepreneurial careers than others. The analysis also indicated that people who are attracted to entrepreneurship based on profit opportunities form stronger entrepreneurial intentions than others. On the other hand, the analysis did not support the idea that people who perceive entrepreneurship as advantageous based, solely, on the perceived challenge and excitement of entrepreneurial work form stronger intentions to start a business than others. The results did, however, corroborate the moderating effect of the reward of profit, which indicates that individuals who seek challenge and excitement in their occupational endeavors (a satisfying way of life) form stronger entrepreneurial intentions than others when they reasonably perceive that they have the opportunity to reap fair, and potentially limitless, financial rewards (profits).

Hypothesis 1(a-c) tested the positive relations of the three preferences for an entrepreneurial career dimensions to the formation of entrepreneurial intentions. It was expected that preference for an entrepreneurial career based on the rewards of (a) independence, (b) a satisfying way of life, and (c) profit would relate positively to the formation of entrepreneurial intentions. Since all of the preferences for entrepreneurial career considerations represent occupational attitudes (Vroom, 1966), past research has demonstrated that they should be predictive of occupational intentions (Kim

& Hunter, 1993). The results of this study support the predicted relation of preference for an entrepreneurial career based on the rewards of independence [H1(a)] and profit [H1(c)] to entrepreneurial intentions but failed to demonstrate a significant relationship for entrepreneurial career preference based on the reward of a satisfying way of life [H1(b)].

Vroom (1966) theorized that individuals intend to initiate behavior after an assessment of the value of the outcomes of the behavior and the likelihood that the outcomes will be attained (Gatewood, 1993). In other words, individuals make plans to expend effort on behaviors that are expected to conclude in the fulfillment of desirable outcomes. Longenecker, Moore and Petty (2000) claimed that the rewards of independence and profit are several valuable rewards that serve to motivate individuals to pursue entrepreneurial careers. The findings of this study are consistent with this basic premise. Independence has been affirmed as a prime motivator for entrepreneurs in several recent studies. Knight (2001) compared the desire for autonomy between "solo" entrepreneurs (those with no corporate-level support) and franchise owners (those with corporate-level support) and found that solo entrepreneurs valued independence and were more highly motivated than franchise owners. In fact, it was further posited that solo entrepreneurs might value independence to the point where their businesses suffer, due to their unwillingness to seek or accept advice (Knight, 2001). Other recent evidence showing the influence of independence as a major initiator of entrepreneurial intentions can be found in a recent national poll of new business owners conducted by USA Today magazine (Longenecker, Moore, & Petty, 2000). Results of the survey found that 38% of the individuals who left corporate positions to start new ventures did so because they wanted to become their own boss. Both of these findings support the results of the current study.

Monetary compensation has been widely heralded as a primary motivating incentive for businesses seeking increased performance from their workforce (Stajkovic and Luthans, 2001). For entrepreneurs, this motivating potential is amplified because the business founder is traditionally in control of, and has the right to make use of, all firm profits (Longenecker, Moore, & Petty, 2000). The findings in this study are consistent with several recent investigations, which demonstrate that positive attitudes toward profit are strong motivators of individual intentions and behavior. Hill and Stevens (2001) analyzed the influence of profit over elevated regular wages in corporations and found that profit-sharing led to overall superior employee effort and performance. The study showed that merely the possession of a small number of profit shares (stock options) was enough to influence employee effort, attitudes, and motivation. Similarly, Fakhfakh and Perotin (2000) examined the effects of profit-sharing on enterprise performance in France and found that profit-sharing was significantly related to increased industrial productivity in large and small firms. When the profit-sharing incentive was threatened by increased internal controls, however, employee performance diminished. Reynolds (1988) surveyed business founders in two states and found that the reward of potential profit was a consistent factor that influenced the new venture decision.

Taken together, past theory and empirical evidence support the finding in this study that the reward of profit is a strong influence on intentions and behavior.

The findings of this study did not support the theory that entrepreneurial career preference based on the reward of a satisfying way of life was predictive of the formation of entrepreneurial intentions. However, other research has confirmed that a positive relation between a satisfying lifestyle and new venture start-ups does exist. For example, Reynolds (1988) examined the emergence of new firms in Minnesota and Pennsylvania (from 1987-1988) and found that many business founders attributed their decision, in part, to start a new venture on the pursuit of a more interesting work lifestyle. To offer a possible rationalization of why the reward of a satisfying way of life was not significantly related to entrepreneurial intentions in this study, the concept of attitude should be explored. Fishbein and Ajzen (1975) define attitude as a learned tendency to react in an approving, or critical, manner toward some stimulus. In this case, entrepreneurial career preference based on a satisfying way of life (attitude) was posited to elicit favorable intentions to pursue entrepreneurship (stimulus). Additionally, Ajzen and Fishbein (1980) theorized that attitudes are a result of beliefs, which are developed by evaluating past experiences. Specifically, an individual who believes that a behavior will result in a positive outcome will hold a favorable attitude toward the behavior only after a finding that the outcome is desirable based on past experiences. It is posited that, without the pertinent experiences from which to base comparable outcomes, there may not be enough compelling evidence from which to form intentions. Since the reward of a satisfying way of life has, routinely, been shown to hold significance for active entrepreneurs (Longenecker, Moore, & Petty, 2000; Reynolds, 1988), it is possible that the sample used in this study (university students) may have not gained enough relevant life experience from which to draw upon to affirm the significance of a satisfying lifestyle to the formation of entrepreneurial intentions. Conversely, the results might also be suggestive of well-informed respondents who know how much work is involved in new venturing and do not perceive of the challenges of entrepreneurship as satisfying. In either case, the hypothesis would be deficient of support.

Hypothesis 2 predicted that entrepreneurial career preference based on the reward of profit would moderate the relationship between entrepreneurial intentions and preference for an entrepreneurial career based on a satisfying way of life. In short, the attractiveness of potential entrepreneurial profits would bolster the formation of entrepreneurial intentions within individuals who crave challenging and non-routine business lifestyles. The results of this study support the predicted relationship.

It was argued earlier that the reward of a satisfying way of life was a common characteristic in many occupations, unlike the uniquely entrepreneurial rewards of independence and profit, and may not offer a compelling consideration for individuals to develop stronger entrepreneurial intentions than others. Therefore, it was hypothesized that the, strongly entrepreneurial, reward of profit (Longenecker, Moore, & Petty, 2000) might logically interact with the reward of a satisfying way of life to strengthen the relationship. While this argument is highly intuitive, there exists theory

that may help explain the observed positive results. Shapero and Sokol (1982: page 86) described the occurrence of the entrepreneurial event as "a necessary interaction between perceptions of desirability and perceptions of feasibility." Perceptions of desirability are social and cultural factors that are expressed through the formation of individual value systems. Generally, an individual within a social system that places value on challenge and excitement (a satisfying way of life) is likely to be influenced to seek a congruent professional lifestyle (Shapero & Sokol, 1982). As such, the result of the search for an occupation that provides challenge and excitement may lead to the formation of entrepreneurial intentions. However, if one perceives that the formation of a business is unfeasible, one may conclude that it is also undesirable (Shapero & Sokol, 1982). Perceived feasibility of a new venture may pertain to the availability of financial support (Shapero & Sokol, 1982), adequate skills and other resources (Krueger, 1993), or expected returns on the investments of time and effort in the form of business profits (Longenecker, Moore, & Petty, 2000). Therefore, positive assessments resulting in the formation of entrepreneurial intentions after the interaction of preferences for an entrepreneurial career based on the rewards of a satisfying way of life (perceived desirability) and profit (perceived feasibility) are consistent with Shapero and Sokol's (1982) thesis.

IMPLICATIONS

Overall, the results of the current study provide practitioners, such as entrepreneurs, vocational educators, and public policy administrators, a number of practical implications that may assist in the expansion of the entrepreneurship agenda. By discerning how entrepreneurial intentions are formed, policy makers may be able to take advantage of the robust intentions-behavior relationship to help promote new business creation initiatives.

One important factor that has the potential to affect intentions is an individual's perceptions of the rewards of an entrepreneurial career. The current study confirmed that the value that people designate to these potential rewards was shown to strongly influence the formation of entrepreneurial intentions through preference for an entrepreneurial career. Better education to enhance knowledge about the likelihood of realistically attaining these rewards should provide valuable perspective from which to form career-related judgments. Essentially, the more that people understand that entrepreneurial work requires long hours and dedicated effort (Chandler & Jansen, 1992) instead of focusing, solely, on potential rewards and accolades should help to decrease the notoriously high failure rates of new ventures (Cromie, 1994) that are initiated by unsuspecting entrepreneur novices. For example, the results suggest that people who are attracted to independence, profit, and challenges are good candidates to form the intentions to pursue entrepreneurship as a viable, realistic, career option. Therefore, any entrepreneurial training that they receive should include in-depth analyses about which rewards may reasonably be attained and in what timeframes for particular types of businesses. In this manner, prospective entrepreneurs can

develop realistic business plans based on pragmatic working lifestyles and realistic compensation expectations.

A possible limitation of the current research was the sole use of students as respondents. It should also be noted, however, that one of the primary strengths of the current study is that all individuals in the study were in the process of making career-related choices. Consequently, the idea of starting a business was a realistic option for them. It has been demonstrated that even early career intentions are good predictors of eventual behavior (Krueger, Reilly, & Carsrud, 2000; Trice, 1991). However, this does not avoid the problem in previous entrepreneurial research of including individuals in the sample who are not engaged in making specific entrepreneurial decisions (Gartner, 1989). According to some researchers, this approach to sampling brings into question the soundness of the findings (Gartner, 1989). However, an attempt was made in this study to include groups of students that may have advanced, or predisposed, opinions about pursuing entrepreneurial careers. The study focused on graduating business students, MBA students, and veterinary students. Each of these sub-samples are comprised of individuals who possess sophisticated business knowledge, attitudes, and ambitions, when compared to others, and represent an appropriate sample from which to study entrepreneurial intentions (Krueger, Reilly, & Carsrud, 2000).

Only studies of a longitudinal nature will ultimately be able to offer a complete explanation concerning whether individuals who score highly for certain entrepreneurial career preferences actually pursue an entrepreneurial career. Entrepreneurial intentions hold little value as a research focus if they are not acted upon. Although Kim and Hunter (1993) found that attitudes predict intentions and that intentions are highly predictive of behaviors, future research should more fully investigate this relationship in entrepreneurial contexts. If a sample was utilized that included only individuals who were knowledgeable and committed about entrepreneurship, then these subjects could form the basis of a longitudinal investigation to discover whether they actually developed the businesses that they were projected to start. Although the effort and resources required to sustain a relationship with a large number of research subjects over an extended period of time is daunting, these types of studies need to be implemented in the academic pursuit of entrepreneurship research.

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USING FAMILY FIRM BOUNDARY MANAGEMENT THEORY TO EXPLAIN THE IMPACT OF PRIVACY ISSUES ON FAMILY FIRM RESEARCH

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ABSTRACT

This paper introduces Family Firm Boundary Management Theory to the family firm literature to help researchers better understand why family firms prefer to safeguard information about their businesses and are so private about internal operations. FFBM has four interrelated dimensions, which are ownership, control, permeability, and levels. These dimensions, and other aspects of FFBM, are presented in the paper to help researchers better understand privacy issues in family firms, and more importantly to better plan for and develop family firm research projects.

INTRODUCTION

While the family firm is the most prevailing type of organization in the United States and throughout the world (Shanker & Astrachan; Dyer, 2003), the number of studies conducted on family firms is relatively few. This is especially true for topics relating to internal operations such as business priorities versus family priorities, strategic and financial decision-making processes, and human resource issues that may lead to questions about perceived promises, trust, and fairness. The issue of privacy among family firms has been addressed in the literature, with the overall conclusion being that, in the minds of family business members, disclosing firm-specific information is virtually indistinguishable from disclosing family-specific information (Hoy & Vesper, 1994).

The contribution of this paper is the introduction of Family Firm Boundary Management Theory (FFBM) to help researchers understand why family firms have such a noted penchant for privacy. FFBM is based on Communication Boundary Management Theory (CBM), which is from the family psychology literature. This theory offers an explanation of how communication barriers are established to regulate ownership of private information (Petronio, 1991; 2000). There are four interrelated dimensions of FFBM, which include ownership, control, permeability, and levels. By understanding these dimensions and other aspects of FFBM, researchers can better plan their approach to collect information, select accessible topics for research, and deepen their understanding of family firms' preference for privacy. Family firms are as much, if not more, about the family as

they are about the business. Looking to the family psychology literature is an important step in family firm research to enhance our knowledge base and deepen our understanding of how family firms operate and interact with outside entities.

According to Dyer (2003), the family firm is the most dominant organizational form in the world, and it is estimated that 90 percent of all businesses in the United States are family businesses (Shanker & Astrachan, 1996). However, in relation to these numbers, very few studies have been done regarding family firms (Dyer 2003). According to Litz (1997), this is due to informational constraints that limit both the quality and quantity of family firm research. This forces one to consider why these informational constraints are so prevalent.

We address the issue in this paper by introducing Communication Boundary Management Theory (CBM), from the family psychology literature, and offer a new theoretical perspective to the family firm literature called Family Firm Boundary Management Theory (FFBM). A literature review is presented that outlines difficulty in collecting data for family firm research. A case in point is offered as a concrete example of the difficulties that exist. Next, Communication Boundary Management Theory is introduced from the family psychology literature, which is the basis for our theory on Family Firm Boundary Management. The four dimensions and two components of FFBM are presented, followed by conclusions.

LITERATURE REVIEW

There is an interesting story in the family firm literature that focuses on a unique exercise conducted by a management consultant. The consultant asks the attendees to describe their businesses as if they were automobiles. One business owner compared his business to a sports car, because of its innovative marketing strategies. A second attendee said that her firm is analogous to a station wagon because of its conservative history and conventional product lines. The third business owner compared his firm to an armored car. When asked to explain the parallel, he responded that unlike the other two, his is a family business: *no one gets in; no one gets out* (Litz, 1997). The purpose of this paper is to offer one plausible explanation why it is so difficult for academic researchers to "get in" and collect the data needed to further our understanding of family firms.

The bottom line is that family firms prefer privacy (Ward, 1987; Whisler, 1988; Litz, 1997). In fact, some researchers have concluded that in the minds of family business members, disclosing firm-specific information is virtually indistinguishable from disclosing family-specific information (Hoy & Vesper, 1994). Simply stated, family firms have a greater unwillingness to disclose firm-specific information than their non-family counterparts. This predisposition to safeguard information from outside entities tends to steer academic researchers towards topics and subjects that are more accessible and manageable (Litz, 1997). This answers the question of why there is such a lack of family firm research and a failure to answer the questions that are not easily discussed (Dees and

Starr, 1992). But, what is still missing is a plausible explanation why family businesses have such a noted penchant for privacy.

One primary issue facing upper management in family firms is balancing responsibilities between the family and those to the business (Frieswick, 1996; Chrisman, Chua & Sharma, 1996). One responsibility is managing and controlling interactions with any external persons or organizations. If most communication flows through the founding family member(s) and/or upper management, then they ultimately control what information flows both in and out of the business (Kelly, Athanassiou, & Crittenden, 2001). Family firms also tend to have an inward orientation, and as such, founders and/or upper management often avoid being held accountable to any outside entities (Daily & Dollinger, 1991).

Family values and the founders' personal goals help shape family firm strategy, and that can lead to family harmony and employment being valued more than firm performance and profitability (Gersick, Davis, McCollom, & Lansberg, 1997; Trostel & Nichols, 1982). Family goals and needs often play major roles in decisions regarding the location of the business, financial strategy, and business strategy (Kahn & Henderson, 1992; Mishra & McConaughy, 1999). In some instances, family business owners are forced to choose between what is best for the family versus what is best for the business, which is obviously a very difficult reality facing family firms and their owners (Brockhaus, 1994). In fact, Gomez-Mejia, Nunez-Nickel, and Gutierrez (2001) suggest that family firms may incur higher agency costs than non-family firms, since family members in upper management may be unwilling to fire an incompetent family member.

Beyond a family founders' preference for privacy, it is also suggested that family business owners seem to have a disinterest in academic studies, and even if they commit, their discontinuance rate is high, especially for more longitudinal studies (Brockhaus, 1994).

CASE IN POINT

To provide a concrete example of family firms' preference for privacy, the authors have elected to share their experiences in trying to conduct a research project on how psychological contracts work in family firms. It is important to note that we adhered to Brockhaus' (1994) advice on conducting research with family firms. He states that researchers should fully disclose the nature and purpose of the study, state how the information will be compiled, make a guarantee of confidentiality, provide the benefits of participation in the study, and describe their time commitments.

As professors, we hold various ranks in our school, one assistant professor, one associate professor, and one full professor. Together, we have 27 publications in peer-reviewed journals, in addition to numerous conference presentations and proceeding publications. This information is presented to illustrate that we have the requisite experience, knowledge, and skills needed to successfully complete empirical research projects.

Additionally, we adhered to the original research model and survey on psychological contracts, which are individual beliefs in a reciprocal obligation between the individual and the organization (Rousseau, 1989). A psychological contract includes a perceived promise, a valued payment, and acceptance of the exchange ENRfu(Rousseau, 1995). This model and survey has resulted in successful data collection and empirical journal publications over the past 17 years (Rousseau, 1989; Rousseau, 1990; Rousseau & McLean-Parks, 1993; Robinson & Kraatz, 1994; Shore & Tetrick, 1994; Robinson, 1995; Rousseau, 1995; Robinson, 1996; Morrison & Robinson, 1997; Turnley & Feldman, 1999; Dabos & Rousseau, 2004; Raja, Johns, & Ntalainis, 2004; and Rousseau, 2004). In an attempt to introduce the concept of psychological contracts to the family firm literature the authors engaged in a research project described in the rest of this section.

Drawing upon *Inc. 500* lists for 2004 and 2005, we contacted approximately 225 firms using an on-line survey methodology. The purpose of this "Phase One" of the research study was to determine whether a firm was family-owned, the extent of family-ownership, and whether the firm would be interested in participating in "Phase Two," in which surveys would be sent to both owners and employees, both family and non-family. We fully disclosed the purpose of the research as being to investigate the relationships between employers and employees in family-owned businesses and that we were researching "psychological contracts," trust and fairness, and business performance. Further, we stated that any information provided for the research would be kept completely confidential and no firms would be identified by name in any publication of the research results. We also said that all surveys would be destroyed after the completion of the study. Additionally, we provided the following statement regarding individual participants:

> *Procedures to preserve your anonymity and confidentially are in place and have been approved by the Institutional Review Board of [this university]. No responses will be traceable to you; your responses will be aggregated (combined) with all others. Results from all companies will be aggregated so that responses from a specific company cannot be identified by any person other than the investigators and research secretary. Participating companies will be sent final, aggregated results of the research. Because of the nature of this survey, the researchers do not foresee that you will experience any risks as a result of your participation. Nor will you receive any direct, personal benefit as a result of your participation. However, your participation will allow researchers to better understand family-owned business employment relationships and practices.*

In terms of time commitments, the Phase One survey took less than five minutes to complete. The letter that accompanied the Phase One survey stated that the Phase Two owner survey would take 10-15 minutes to complete, and the employee survey would take 20-25 minutes to complete.

Again, the main purpose of Phase One was to determine their willingness to participate in Phase Two.

We received 23 responses. Of these, only four stated that they would be interested in participating in Phase Two (less than 2% of the original number). We sent two reminder e-mails to the non-responding firms without success (except a few requests to be removed from the mailing list). Within two weeks of contact by the "yes" firms, we mailed Phase Two surveys (along with cover letters reminding participants of the purpose of the research and assuring anonymity) for both owners and employees of each. The number of surveys mailed ranged from 20 to 80 per firm.

As we awaited these Phase Two surveys to be returned, we discussed why the response rate was so low to the Phase One inquiry and concluded that one reason might be the on-line methodology itself being off-putting. We decided to use a different approach to find more family firms willing to participate. In our revised approach, we used *Fortune's* "Fastest Growing Companies in 2006" list and mailed the Phase One inquiry survey to 99 firms via standard mail. We received no replies.

We moved on to more lists that might yield additional family firms. We used *Family Business Magazine's* lists of "America's 150 Largest Family Businesses" and, somewhat later, "America's 150 Oldest Family Businesses." From the former list, the CEO/owner of a very large firm responded that he would like his firm to participate in Phase Two. Because of the size of the firm (many thousands of employees), we realized that we would need to use a vendor to set up a Phase Two survey that could be completed on-line anonymously and easily by employees and owners. One of the authors worked with the vendor to refine an on-line version of the Phase Two survey as well as kept in direct contact with the CEO to assure continuance in the project. We also contacted potential participants via yet another list, *Forbe's* "Largest Private Companies for 2006" (360 companies). From this list, two responded that they would like to continue with Phase Two. One was large enough to utilize the on-line method for Phase Two and we established and maintained contact with the CEO of this firm as well. For the second firm, due to its relatively smaller size, we mailed approximately 800 hard-copy surveys. Also, during this general time frame, we mailed Phase One inquiry surveys to companies on *Fortune's* list of the 100 "Fasting Growing Small Public Companies." We received one "no" response and no others. Also, another of the authors, through a research colleague, established contact with yet another group of family firms, eight of which agreed to participate.

Surveys from the very first effort (that yielded only four companies willing to participate in Phase Two) had earlier trickled in from only two of the four companies. We never heard from the other two. From the two participating firms, we received two owner surveys and 36 employee surveys combined.

As we continued to work with the Phase Two on-line vendor, we were contacted by the firm to which we had sent 800 hard-copy surveys. Upon receiving the surveys, the firm decided not to participate and subsequently mailed the surveys back. At this point, we decided that the nature of

the research itself -- essentially exploring elements of trust, fairness, and promise-keeping -- might be a contributing factor to lack of response. We could not afford to have the on-line vendor move forward with the Phase Two survey if the two firms would also decide not to participate after all. The author who had been maintaining contact with these two larger firms contacted them again, submitting the surveys for the CEO/owners to peruse. Both now declined to participate further.

As of this writing, a year after the original on-line Phase One step, we have contacted approximately 1,030 firms. We have received only six surveys from owners and 43 from employees. This has forced us to really consider why there is such a noted unwillingness of these family firms to participate, especially since there was initial commitment to participate by several firms. However, upon seeing the survey questions or being provided information about specific elements of psychological contracts (i.e. trust, fairness, promise-keeping), they chose to withdraw from the study.

COMMUNICATION BOUNDARY MANAGEMENT THEORY

Based on the experience described in the aforementioned case in point, the authors began researching privacy issues in family firms, going beyond what is currently available in business literature and into family psychology literature. Communication Boundary Management Theory (CBM) offers an explanation of how communication barriers are established to regulate ownership of private information (Petronio, 1991; 2000). CBM theory focuses on (1) how boundaries are structured - who and who does not have access to information; and (2) a rule of management system - the factors that govern decisions about what private information to reveal or conceal (Petronio, 2000).

Communication boundary structures have four interrelated dimensions: ownership, control, permeability, and levels. Ownership refers to a family member's right to govern whether private information about them is revealed to or concealed from others. Therefore, each family member owns this control over his or her own words, behaviors, and attitudes. Control takes into account the dimension of ownership in addition to risk. The amount of risk associated with revealing different types of information varies. The amount of risk also affects who has access to that information. Permeability refers to how open the information is within the family. The more people within the family who have access to specific information, the more likely it will be exposed outside the family. The final dimension is levels, which takes into account different family member roles. Some information may only be known and discussed by family members of a certain generation, and not disseminated to family members in later generations. In other cases, the information may be spread to only one side of the family (in marital relations), or perhaps certain information is only shared among members of a certain gender. This results in subgroups of a family having access to information kept secret from other subgroups.

The rule of management system is the second component of CBM theory. This is an internal system used to control who has access to certain information and when it should be protected. This can include who is told, how much is told, what kind if information is revealed, and even reasons behind why certain information is disclosed, while other information is concealed.

In the family psychology literature, CBM theory has been used to better understand the disclosure of private information between marital couples (Petronio, 1991); to compare boundaries across different family forms (Caughlin, Golish, Olson, Sargent, Cook & Petronio; 2000); to uncover motivations underlying topic avoidance in close relationships (Afifi & Guerrero, 2000); and to analyze parental privacy invasion in family interactions (Petronio, 1994), among other different types of family relationships and issues.

The theory of Communication Boundary Management has also been applied in the information technology and e-commerce literature to better understand privacy issues. For example, with the rising popularity of the Internet, people are becoming more concerned with the privacy and security of sensitive information. Stanton (2003) developed a new theoretical perspective (based on Petronio's theory) called Information Boundary Management Theory, that describes whether, when, and why employees care about the privacy and security of sensitive information at work. Likewise, Metzger (2007) applied CBM to understand the tension between information disclosure and privacy within e-commerce relationships.

In this paper we use Communication Boundary Management Theory to offer a new theoretical explanation called Family Firm Boundary Management Theory (FFBM) to help explain why it is so difficult to access the information needed to truly further our understanding of family firms.

FAMILY FIRM BOUNDARY MANAGEMENT THEORY

As mentioned in the literature review, in the minds of family business members, disclosing firm-specific information is virtually indistinguishable from disclosing family-specific information (Hoy & Vesper, 1994). The family and the firm systems are isomorphic and virtually impossible to separate. This is why it is so difficult to tap into how family firms make certain decisions (Handler, 1992); issues of ethics, principles, and values (Ackoff, 1987; Wilson, 1980; Chrisman & Fry, 1982); or issues of family firm mismanagement (Dees & Starr, 1992). Instead, most research focuses on how family businesses contribute to the GNP and employment (Brockhaus, 1994); or the firm's reputation among customers and suppliers (Litz, 1997); as well as broader issues of family firm strategy and succession planning.

In this section, the original Communication Boundary Management Theory components and dimensions (Petronio, 1991; 2000) are discussed in terms of how they may play into preference for privacy issues and FFBM theory resulting in a lack of academic research. The authors contend that

this is helpful for researchers of family firms to understand when faced with the collection of more sensitive data or information that is not readily available.

Ownership

Assume that family member A views family member B as having a bias against non-family member employees. Regardless of that opinion, and even if certain factual evidence may exist, "ownership" suggests that family member A does not have the right to choose whether that information is revealed to or concealed from outside entities; only family member B would have that right. Family member A would find answering the survey very difficult, especially if it contained sensitive or controversial information. That is, a family member might easily answer a survey with questions pertaining only to them, but have difficulty answering questions about more broad management issues or anything he or she observes in the behaviors of other family members. As a result, the amount of information that can be shared, according to the dimension of ownership, can be very restrictive.

Control

This dimension adds the variable of risk into the equation. Revealing how much the family firm has grown over that past five years may be considered low risk. Revealing how the firm views social responsibility may be considered moderately risky. Revealing how non-family members in the firm are evaluated and promoted versus family members may be considered high risk, as now you are tapping into how decisions are made and possibly issues of ethics, values, fairness, and trust. As such, family firm management may prefer tighter control over that type of information. The second aspect relates to who has access. While information may be provided to a board of advisors, the same information may not be offered to academic researchers because of the risk associated with a lack of perceived control over what will actually be done with the data (even if there is a statement of confidentiality and so forth). Additionally, they choose who is on the board, whereas in most cases, they have not chosen or initiated a relationship with academic researchers.

Permeability

How open the family is with information in the family firm is important to consider. The more people within the firm who have access to specific information, the better chance it will be leaked to outside entities. This taps back into the concept of risk. In some cases, very risky information may be shared with certain family members, but not with other family members. For example, the founding member may know the firm is in serious trouble for one reason or another. He may decide to share that information with his brother, who is a co-founder, but not his daughter,

who is first in line to take over the family firm. So, in some cases closely guarded information may remain fairly impermeable, whereas in other cases, the free exchange of information leads to a more permeable communication boundary. The more impermeable, the more likely there are intra-family secrets. This is different from information that is merely kept private from external entities, as family members who hold this information tend to keep it more closely guarded (Bok, 1983; Vangelisti, 1994). Therefore, the more impermeable a family firm is in regard to internal operations, the less likely any information will be available to the academic researcher.

Levels

The final dimension is levels, which takes into account hierarchical roles. Some information may only be privy to upper level management, and not disseminated to family members in lower level positions within the firm. In other cases, the information may be spread through all levels in the business, but only to family members. This can result in certain family members having access to information kept secret from non-family members occupying higher-level positions in the firm. This could include decisions about the business that put family values and interests above profitability and performance. If any of this type of information is kept from any party within the business, it will most certainly be kept from academic researchers.

The rule of management system is the second component of CBM theory, which is an internal system used to control who has access to certain information and when it should be protected. As mentioned in the literature review, the founding members and/or upper management tend to control information flowing both in and out of the family firm (Kelly, Athanassiou, & Crittenden, 2001). Therefore, it is plausible to assume that they create and maintain the rule of management system. So, not only will academic researchers not get the information they need for research, they may also not know or understand the rule of management system(s) within the firms in their prospective participant pools. The rule of management system will likely be different from firm to firm, causing even more confusion and varying results.

CONCLUSIONS

Deepening our understanding of the "family side" of family firms is crucial if we are going to increase the number of studies conducted in the field. It is oftentimes easier to choose other types of research projects, rather than deal with the privacy issues in family firm research. Our take is that the family firm is as much, if not more, about the family as it is about the business. Therefore, we sought out theories and empirical studies from the family psychology literature to further our own understanding of how communication barriers are established to regulate ownership of private information (Communication Boundary Management Theory: Petronio, 1991; 2000).

This paper's contribution is the introduction of Family Firm Boundary Management Theory to help researchers not only understand why family firms prefer privacy, but with the hope that this understanding will help them better plan for and develop research projects in the field. We also hope that this paper will inspire others to look further into the family psychology literature for other theories and empirical studies that may help develop our knowledge base and thus strengthen the family firm literature.

Although communication boundaries are metaphorical (Altman, 1976; Petronio, 1991), the stable nature of them is an excellent indicator of why academic researchers have been relatively unsuccessful in acquiring necessary information to appropriately develop family firm literature. Drawing from the family psychology literature to understand how families view and communicated with outside entities is an important step in family firm research.

This paper focuses on one theory from this body of literature, Communication Boundary Management Theory (Petronio, 1991; 2000), which has been used to help understand different family forms, marital relationships, and other types of family interactions. Using the foundation of the two components (boundary structures and the rule of management system) and four dimensions (ownership, control, permeability, and levels) of CBM, the authors offer Family Firm Boundary Management Theory to help family firm researchers better plan their approach to collect information, select accessible topics for research, and deepen their understanding of family firms' preference for privacy. Not all dimensions may be at play in all research projects, or some dimensions may be more dominant. For example, in our research project on psychological contracts, it appears that issues of control and ownership are most prevalent in preventing owners from allowing employees to share their perceptions. Once employees' perceptions of promise keeping, fairness, and trust leave the organization, true ownership and control over how it might be used and communicated is lost. Permeability and levels may not being playing as large of a role, because employees have various perceptions of management and operations even if they are not privy to all information. It is important for researchers to consider which of the four dimensions might affect their project, and always remember the rule of management system as a factor.

Since family firms appear to be as much, if not more, about the family as they are about the business, we suggest that more family firm researchers look to the family psychology literature at other theories and empirical studies to help further our understanding of family firms.

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ARE ENTREPRENEURS OPTIMISTIC, REALISTIC, BOTH OR FUZZY? RELATIONSHIP BETWEEN ENTREPRENEURIAL TRAITS AND ENTREPRENEURIAL LEARNING

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ABSTRACT

This article presents a novel approach to measure entrepreneurial optimism and realism and their relationship to individual demographics, entrepreneurial characteristics, and learning reflections on new venture formation. Measures of optimism from psychology and a measure of realism developed by the authors were used to determine if entrepreneurs are optimistic and/or realistic, a majority are. Many entrepreneurs were both optimistic and realistic. Interesting tendencies were also identified between those characteristics and other entrepreneurial characteristics and behaviors. Most of the entrepreneurs would start again. Changes that entrepreneurs would make if they were going to start again tended to be in finance, marketing, seeking more counseling and training.

INTRODUCTION

Optimistic thinking, reactions and feelings are frequently studied in psychology. Optimism is a common attribute cited in entrepreneurship research when describing entrepreneurial individuals. Most researchers agree that optimism implies "*a general disposition to expect the best in all things"*. Unfortunately entrepreneurship research has not provided empirical evidence that demonstrates whether or not entrepreneurs are optimistic, levels of optimism among different entrepreneurs, and how optimism relates to decisions and learning experiences in new venture formation. Many questions remain unanswered such as: Are entrepreneurs really optimistic? Have we mixed the concept of optimism with "positive illusion" (Ottesen & Gronhug, 2005, p. 405) which is a misperception of oneself and the environment that can lead to faulty investment and failure? Have we overstated the effects of optimism on new venture creation without exploring other possible characteristics such as realism?

More (1998) discussed the possibility for people to be both optimistic and realistic – those of us who think of ourselves as rational, clear headed, may say "I am neither an optimist nor a pessimist, I am a realist." He felt that individuals intend to express a commitment to truth, sound

judgment and rationality in making such a statement and that the nature of the world meant that to be realistic we normally had to be optimistic.

Since we could find no definition for realism in the entrepreneurship literature, we use dictionary definitions. Dictionary.com Unabridged (v 1.1) (2008) defines realism as …"Interest in or concern for the actual or real, as distinguished from the abstract, speculative and the tendency to view or represent things as they really are." The American Heritage (2000) definition includes: "An inclination toward literal truth and pragmatism. The representation in art or literature of objects, actions, or social conditions as they actually are, without idealization or presentation in abstract form." YourDictionary.com (2008) defines realism as "a tendency to face facts and be practical rather than imaginative or visionary." These definitions provide a working base for this research. For purposes of this research, we think that realistic entrepreneurs are more likely to give more serious, careful consideration of their actions and seek information that will allow them to make decisions with reasonable judgment.

It is important for researchers to recognize that entrepreneurs, the center of new venture creation, who capitalize intellectual and physical assets in the process of wealth creation by discovering and transforming unique opportunities into new ventures. While entrepreneurship researchers often attribute optimism to entrepreneurs and discuss the consequences for new venture creation, there has been very little empirical data to prove that entrepreneurs are optimistic and how that optimism influences personal decisions and learning experiences in new venture creation. In addition, no tool has been developed in either psychology or entrepreneurship to measure "realism." We know that it is reasonable to assume that unrealistic optimism can lead to problems in new ventures. The question is – how do we measure optimism and realism before so that can explore ideas such as "realistic optimism" or "unrealistic optimism"?

This article presents some of the first empirical evidence to determine (1) if entrepreneurs are optimistic or realistic, (2) different levels of optimism and realism among entrepreneurs, and (3) how optimism and realism relate to entrepreneurs' demographics, characteristics and learning in new venture creation. Four categories of entrepreneurial traits were defined for this study: optimistic, realistic, both or mixed optimistic/realistic, and fuzzy (neither optimistic nor realistic). This study is among the first to (1) adopt the Life Orientation Test – Revised (a tool commonly used in psychological research) to study entrepreneurial optimism; (2) create a new tool to measure realism, (3) create a bridge between a conceptualized framework in entrepreneurship and psychology to examine human nature; and (4) analyze the relationship, if one exists, between optimism/realism and other variables associated with entrepreneurial individuals.

This study is an exploratory study and it is not the authors' intention to generalize the results of this study at this point. We think that there has been a major gap in entrepreneurship theory to establish a systematic approach that could explain who entrepreneurs are and how their traits relate to new venture decisions. We also acknowledge that new venture creation is a dynamic process that may change significantly from time to time as a result of changing social, political or economic

changes in the environment. The long term goal of this study is to gather enough data to formulate a conceptual theoretical framework including testable hypotheses and using multivariate equilibrium approach to study entrepreneurial individuals.

LITERATURE REVIEW

General profiles of entrepreneurs often include optimism and other entrepreneurial characteristics such as self confidence, high expectations, willingness to accept risks, etc. Some empirical studies have examined how entrepreneurial characteristics impact on certain entrepreneurial decisions in investment, new venture creation, work/life choices, or success/failure of entrepreneurial actions. Researchers in psychology have investigated optimism (often contrasted to pessimism) as an attribute of individuals who link positive thinking, better outcomes, personal control, personal well-being, coping strategy, self-esteem, or interactions between individuals in different cultures and environments. Interestingly the authors could find no research or experimental findings directly related to realism. Realism is often linked to optimism given the terms of realistic optimism or unrealistic optimism. There has been no discussion about how to synthesize optimism and realism in either psychology or entrepreneurship.

Optimism is often listed among the other characteristics of entrepreneurs such as high achievement drive, action oriented, internal locus of control, tolerance for ambiguity, moderate risk taking, commitment, opportunistic, initiative, independence and commitment/tenacity (Liang and Dunn, 2003; Malach-Pines, Ayala, Arik Sadeh, Dov Dvir, and Orenya Yafe-Yanai, 2002; Crane, 2004). Most researchers who have studied entrepreneurs' characteristics or traits seem to agree that optimism is a distinct characteristic of entrepreneurs.

Optimism is sometimes interpreted as a positive force and sometimes as a negative force in entrepreneurship. Entrepreneurs tend to over-estimate the odds they will succeed (Baron and Shane, 2005). Optimists often deluded themselves into becoming entrepreneurs with high risks of failure (De Meza and Southey, 1996). An experiment conducted by Coelho and De Meza (2006) discovered that irrational expectations (also interpreted as unrealistic optimism) led entrepreneurs to act against their best interest and resulted in a loss of well being. The behavioral finance literature suggests that failure rates of new ventures could be explained only by entrepreneurial bounded rationality in the form of overconfidence and/or optimism at the project initiation stage (Brocas, 2004). Puri and Robinson (2004) presented results in a large scale study that linked optimism to significant work/life choices and entrepreneurship, using a measurement of optimism based on life expectancy biases recorded in the Survey of Consumer Finance. Although Puri and Robinson (2004) relied on indirect questions about life expectancy to measure optimism, they discovered that entrepreneurs were more optimistic than non-entrepreneurs, optimism correlated to work and life choices, and entrepreneurs were more risk loving than non-entrepreneurs.

Other writers have emphasized the positive aspect of optimism in entrepreneurs, their success, and their contributions to the economies in which they operate. Kuratko and Hodgetts indicated that… "The ceaseless optimism that emanates from entrepreneurs (even in the bleak times) is a key factor in the drive toward success." (Kuratko and Hodgetts, 2004, p. 111) Others such as Hey (1984) had mixed feelings about the impact of optimism… "We exploit the primitive notion that an optimist is someone who over-estimates (underestimates) the likelihood of favourable (unfavourable) outcomes."(Hey, 1984) Cognitive biases lead to "overestimating demand, underestimating competitor response, and misjudging the need for complementary assets, and, ultimately, deciding whether to pioneer." (Simon and Houghton, 2002) Optimism also has been linked to the risk acceptance by entrepreneurs. "Entrepreneurs with high levels of optimism usually form high expectation about their actions and they are connected with high risk perception." (Petrakis, 2005, p.237)

Several researchers have found that unrealistic optimism in business presented both positive and negative impacts on entrepreneurs' well being. Unrealistic optimism (or overestimated optimism) can lead to a misallocation of resources and a reduction in welfare (Manove, 2000). But unrealistic optimism can also stimulate saving and investment and provide added incentives for hard work (Manove, 2000). Manove is among one of the first researchers to demonstrate the coexistence of optimists and realists in the business environment. His experiment explored the interaction between the optimists and realists with respect to self evaluated productivity and competition. He discovered that in some technological environments (such as those characterized by small firms with rapidly decreasing returns to scale) optimistic entrepreneurs may coexist with realists in competitive equilibria or even drive the realists out of business. Moreover, the resulting equilibria would evidence significant distortions in the marketplace. Fraser and Greene (2006) developed an occupational choice model in which entrepreneurs, who were initially uncertain about their true talent, learn from experience. These authors followed a series of literature in dynamic industrial organization to develop a learning model of occupational choice under uncertainty given a set of personality traits. As a result of their study, both optimistic biases in talent beliefs and uncertainty diminish with experience – the more entrepreneurs learn, the more realistic they become. However, none of these researchers described how they distinguish optimism and realism.

A review of the psychology literature contains a great deal of information on optimism and its relationship of optimism to expectations. Optimism was found in many positive psychology discussions… "An optimist is widely thought of as someone who sees the silver lining in every cloud and views the world through rose-tinted spectacles (or a glass that's always half full)." (Centre for Confidence and Well-Being, 2006). The optimism mentioned in entrepreneurship literature is similar to "dispositional optimism" in psychology. Dispositional optimism is the bias to, across time and situations, hold positive expectations. Individuals who are dispositionally optimistic believe that, in general, their life goals will be met (Sujan, 1999). "Thus, dispositional optimism is a very general tendency, a disposition that reflects expectations across a wide variety

of life domains." (Wrosch and Scheier, 2003, p.64) Chang (2001) indicated that dispositional optimism "…reflects an expectation that good things will happen, whereas pessimism reflects an expectation that bad things will happen." Haugen (2004) suggested that the concept of general expectancy was a fruitful concept in central personality dispositions, encompassing both positive and negative expectancy including optimism and pessimism.

According to the psychology literature, optimists feel in control of their activities and that those activities would give them more satisfaction, that they have a significant role in initiating projects, have adequate control and time to carry them out, have made more progress toward their goal, and have relatively heightened expectations that the outcomes of their projects will be successful (Jackson, Todd, Weiss, Lundquist, and Soderlind, 2002). Optimists rated their personal projects as more congruent with and fulfilling of their values and identities, which also reflected positively on their sense of self and other goals (Jackson, Todd, Weiss, Lundquist, and Soderlind, 2002).

Psychologists have also discovered that optimism is related to psychological well-being and coping behaviors. "Optimism is a key contributor to subjective well being because it fosters self-esteem, relationship harmony, and positive perceptions of financial conditions." (Leung, Moneta and McBrice, 2005) Psychologists have also pointed out that optimists believe in good luck which was associated with better psychological well being (Day and Maltby, 2003). Wrosch and Sheier (2003) concluded that optimists, as compared with pessimists, more frequently used active coping tactics when confronted with aversive situations and adaptive emotion-focused coping tactics when important life goals are blocked. People who are able to disengage from unattainable goals and re-engage elsewhere seem able to avoid accumulated failure experiences so as to achieve higher quality of life. Optimists also use a strategy of acceptance/ resignation, but they do so only in the very circumstance in which the strategy seems entirely adaptive (Scheier and Carver, 1987).

Other psychologists suggest, as have entrepreneurial researchers, that "Excessive optimism at the wrong time and in the wrong situation can blind us to the costly consequences of certain actions."(Schulman, 1999) Strong optimism is helpful in that it encourages people to expect success and focus on the activities needed to achieve that success, but there may be negative consequences when things do not go as expected (Niven, 2000).

Optimism may go much deeper than we have believed and links many different concepts that cross or overlap entrepreneurship and psychological theories. Barbera (2004) indicated that over the long haul, "one needs to recognize that persistent optimism, the signature characteristic of American entrepreneurs, provides the dynamism that delivers growth for the U. S. economy." While many entrepreneurship researchers have discussed optimism and have indicated that optimism generates both positive and negative impacts that influence personal and business development, the authors could find no literature in which an attempt was made to measure entrepreneurial optimism or realism.

The assumed relationship between optimism, realism and business decisions have become the foundation of this study - to determine if entrepreneurs are optimistic or realistic, and if and how optimism and/or realism are related to learning experiences? To do that, we followed Baron's admonition that "…from both a scientific and a practical perspective, applying the principles and findings of psychology to the study of entrepreneurs seems to hold great promise." (Baron, 2000, p.60)

Several research questions were generated for this study based on literature review: (1) Are entrepreneurs optimistic or realistic, and is it possible to verify entrepreneurial optimism and realism using a psychological approach? (2) Does entrepreneurial optimism or realism relate to learning experiences in new venture decisions?

RESEARCH METHODOLOGY

The first step of conducting this research was to design a questionnaire. The target of this research is "entrepreneurs who have already started their ventures and might be considering starting another new venture in the future". There were five sections in the survey to cover demographics and characteristics, optimism assessment, realism assessment, decisions to start another new venture, and learning experiences. *Demographic* information included gender, age, ethnicity, family composition, type of businesses, location of businesses, how businesses were acquired, number of full time and part time employees, and previous business experience. *Characteristics* information revealed if entrepreneurs wanted to be independent, wanted to be their own bosses, believed they were creative and innovative, and were willing to take risks. The answers were on a Likert scale as Strongly Agree, Agree, Disagree, and Strongly Disagree.

Statements for *optimism assessment* were adapted from the Life Orientation Test-Revised (LOT-R) (Scheier, Carver and Bridges, 1994). There were ten statements in the original LOT-R – three positive statements, three negative statements, and four non-scored items as filler statements. Three positive statements were: "In uncertain times, I usually expect the best", "I am always optimistic about my future", "Overall I always expect more good things happen to me than bad". Three negative statements were: "If something can go wrong for me, it will", "I hardly ever expect things to go my way", and "I rarely count on good things happening to me". Entrepreneurs responded based on a four-point Likert scale ranging from "strongly agree" to "strongly disagree". Carver, in an article he wrote for a specific website, indicates that the LOT-R has good internal consistency (Cronbach's alpha runs in the high .70s to low .80s) and is stable over time. The LOT-R procedure has been recognized by many psychologists as a sufficient and robust tool to measure optimism. For example, many psychologists have conducted research using the LOT-R to explore personal control in sports, to investigate relationship between optimism and depression/coping/anger, to analyze effects of optimism on career and well-being, and to examine impact of optimism on changes of environment and circumstantial situations (Burke, et. al. 2006;

Burke, Joyner, Czech and Wilson, 2000; Puskar, Sereika, Lamb, Tusaie and Mcguinness, 1999; Creed, Patton and Bartrum, 2002; Perczek, Carver, Price and Pozo-Kaderman, 2000; Sydney, et. al. 2005). Clinical researchers have also utilized the LOT-R to understand how optimism affected patients in dealing with various health issues or treatments (Walker, Nail, Larsen, Magill and Schwartz, 1996). The LOT-R is available on-line and it is free for researchers to use (Centre for Confidence and Well-being, 2006).

A measure for *realism assessment,* however, did not exist. We created our own statements to capture the essence of realism after conducting a thorough literature review in psychological research, and extensive discussions and consultations with entrepreneurs and entrepreneurship educators. There are seven statements for realism: "I usually set achievable goals", "I usually look before I leap", "When planning, I usually consider both negative and positive outcomes", "I am always realistic about my future", "I try to be reasonably certain about the situation I face when starting an important activity", and "I usually weigh the risks and rewards when making decisions". Entrepreneurs responded based on a four-point Likert scale ranging from "strongly agree" to "strongly disagree". Using the reliability test, Cronbach's Alpha statistic showed a much higher confidence level for the realism statements, .82, compared with the optimism statements, .43, (Table 1).

Optimistic entrepreneurs represent those who respond to optimism questions "agree" and "strongly agree". Realistic entrepreneurs represent those who respond to realism questions "agree" or "strongly agree". Both or mixed optimistic/realistic entrepreneurs respond to both optimism questions and realism questions "agree" and "strongly agree". Finally fuzzy entrepreneurs provided negative responses "disagree" and "strongly disagree" to both optimism questions and realism questions.

Table 1: Reliability of Tests Used

Realism Variables		Optimism Variables	
Reliability Statistics	Number	Reliability Statistics	Number
Cronbach's Alpha	Variables	Cronbach's Alpha	Variables
0.824	7	0.432	6

Entrepreneurs were asked *if they would start another new venture again given what they knew* (Strongly Agree, Agree, Disagree and Strongly Disagree). Finally we asked the entrepreneurs to share about their *learning experiences* – if they would start another new venture again, what they would do differently. The choices included (could be multiple choices): not to change at all, get help from business counselors, start on a more modest scale, use different sources of funds than personal sources, get a different location, prepare a better marketing plan, spend more time and money on advertising, define target customers better, prepare a better financial plan, get more cash before

going into the business, put together a better management team, do more research about the business, prepare a more detailed business plan, have more classes training related to business concepts, and not have my family members involved in the decision-making process.

After the questionnaire was designed and pre-tested, entrepreneurs were contacted by a research contact person and asked to complete the questionnaire. After permission was granted, the entrepreneur was given the questionnaire and allowed to complete it in private. After completion, the questionnaire was returned to the research contact person. The collection was during business hours; however it was sometimes necessary to administer the questionnaire while the business was closed or at a convenient time that met the business owners' schedules. The questionnaire was administered to a convenience sample of business owners in the Mississippi River Delta region. There was no direct personal relationship (family members) between the interviewers and the respondents. However, it is possible that the interviewers were acquainted with the respondents through other connections. The interviews were conducted between January 2006 and May 2007. One hundred and forty-two questionnaires were completed and usable.

Descriptive statistics were used to summarize frequencies and percentage of responses demographics. Cross tabulation analysis was performed, chi square and gamma statistics were calculated and P-values of significant relationship were also included.

FINDINGS OF THE STUDY

Respondents included 32.4 percent female and 67.6 percent male, 82.1 percent majority and 17.9 percent minority, 73.2 percent married with and without children and 26.8 percent single with and without children. A majority of the respondents were 50 years old or less (63.4 percent) and 36.6 percent were over 50. Most were from an urban area (59.0 percent) and 41.0 percent were rural. Sixty percent of the respondents had experience in the line of business and almost 40 percent had no experience in the line of business. Over 30 percent had no operations experience, 27.4 percent had between 1 and 5 years and 38 percent had 6 or more years. Over 20 percent had no managerial experience, 38.4 had less than 6 years and 41 percent had 6 or more years when interviewed. Over one fourth of the respondents had no managerial experience before starting, 47 percent had 1 to 5 years and 32 percent had 6 or more years of managerial experience before starting their business (Table 2).

Since the purpose of the study was to study realism and optimism among entrepreneurs, a frequency of the distribution of these traits is presented (Table 3). About 29 percent of the respondents were only realistic, 14.1 percent were only optimistic, 33.1 percent indicated that they were both optimistic and realistic and 23.9 percent were neither optimistic nor realistic. "Realistic" entrepreneur is defined as those who answered realism measures "Agree" or "Strongly Agree." "Optimists" entrepreneurs answered all optimism questions "Agree" or "Strongly Agree." The "both" category includes those who responded to optimism and realism measures positively and

"fuzzy" includes those who responded to one or more of the realism and optimism measures negatively.

Table 2: Sample Demographics					
Gender	Frequency	Percent	Experience in the Line of Business		
Female	46	32.4		Frequency	Percent
Male	96	67.6	Yes	84	60.4
Total	142	100	No	55	39.6
Ethnicity			Total	139	100
Majority	115	82.1	Operations Experience		
Minority	25	17.9	None	39	34.5
Total	140	100	5 or less	31	27.4
Marital situation			6 +	43	38.1
Not Married	38	26.8	Total	113	100
Married	104	73.2	Managerial Experience		
Total	142	100	None	15	20.5
Age			1 – 5	28	38.4
50 or less	92	63.4	6 +	30	41.1
Over 50	53	36.6	Total	73	100
Total	145	100	Management Experience Before Start		
Rural or Urban			None	30	26.8
rural	57	41	5 or less	46	41.1
urban	82	59	6 +	36	32.1
Total	139	100	Total	112	100

Table 3: Frequencies of Realistic, Optimistic, Both and Fuzzy Entrepreneurs		
	Frequency	Percent
Realistic	41	28.9
Optimistic	20	14.1
Both	47	33.1
Fuzzy	34	23.9
Total	142	100.0

Table 4 indicates that female entrepreneurs tended to be more realistic (41.5 percent). Male entrepreneurs tended to be more optimistic (75.0 percent) and evenly split on realistic/optimistic (70.2 percent) and fuzzy (70.6 percent). Majority entrepreneurs tended to be more realistic/optimistic (91.5 percent) and optimistic (90.0 percent), but minority entrepreneurs tended to be more fuzzy (26.5 percent) and realistic (25.6 percent). Younger entrepreneurs tended to be more realistic/optimistic (73.9 percent) and fuzzy (61.8 percent), and older entrepreneurs were realistic (46.3 percent). Single entrepreneurs tended to be more realistic (34.1percent) and realistic/optimistic (26.5 percent), and married entrepreneurs tended to be more optimistic (85.0 percent).

More rural entrepreneurs were optimistic (60.0 percent). More urban entrepreneurs were realistic (64.1 percent), realistic/optimistic (66.0 percent) and fuzzy (54.5 percent). It seems that realistic and realistic/optimistic are the prevalent characteristics for these entrepreneurs. There were, however, no statistically significant differences among entrepreneurs across demographics.

Table 4: Percentage of Demographics by Type of Entrepreneurs

Variables	Realistic	Optimistic	Both	Fuzzy
Gender				
Female	41.5	25.0	29.8	29.4
Male	58.5	75.0	70.2	70.6
Total	100.0	100.0	100.0	100.0
N	41	20	47	34
Chi-Square	0.508	Gamma	0.304	
Ethnicity				
Majority	74.4	90.0	91.5	73.5
Minority	25.6	10.0	8.5	26.5
Total	100.0	100.0	100.0	100.0
N	39	20	47	34
Chi-Square	0.073	Gamma	0.922	
Age				
50 or less	53.7	60.0	73.9	61.8
Over 50	46.3	40.0	26.1	38.2
Total	100.0	100.0	100.0	100.0
N	41.0	20.0	46.0	34.0
Chi-Square	0.263	Gamma	0.281	

Table 4: Percentage of Demographics by Type of Entrepreneurs				
Variables	Realistic	Optimistic	Both	Fuzzy
Marital situation				
Single	34.1	15.0	25.5	26.5
Married	65.9	85.0	74.5	73.5
Total	100.0	100.0	100.0	100.0
N	41	20	47	34
Chi-Square	0.459	Gamma	0.580	
Rural or Urban				
Rural	35.9	60.0	34.0	45.5
Urban	64.1	40.0	66.0	54.5
Total	100.0	100.0	100.0	100.0
N	39	20	47	33
Chi-Square	0.202	Gamma	0.799	

For comparison purposes, we analyzed some commonly used entrepreneurial characteristics with realistic, optimistic, both, and fuzzy. Most of the entrepreneurs agreed that they were independent, wanted control, and accepted risks regardless their perceptions on optimism or realism. There was a statically significant difference among the entrepreneurs regarding being creative. Those who were optimistic, 80.0 percent, and fuzzy, 76.5 percent, were less likely to consider themselves creative than those who were realistic, 97.6 percent, 80.0 percent, and both, 97.8 percent (Table 5).

Table 5: Percentage of Entrepreneurial Characteristics by Type of Entrepreneurs					
Variables	Realistic	Optimistic	Both	Fuzzy	Test
Independence					
Agree	97.6	85.0	93.5	91.2	Chi-Square
disagree	2.4	15.0	6.5	8.8	0.331
Total	100.0	100.0	100.0	100.0	Gamma
N	41	20	46	34	0.399
Control					
Agree	95.1	90.0	97.8	94.1	Chi-Square
disagree	4.9	10.0	2.2	5.9	0.594

Table 5: Percentage of Entrepreneurial Characteristics by Type of Entrepreneurs					
Variables	Realistic	Optimistic	Both	Fuzzy	Test
Total	100.0	100.0	100.0	100.0	Gamma
N	41	20	46	34	0.860
Creative					
Agree	97.6	80.0	97.8	76.5	Chi-Square
disagree	2.4	20.0	2.2	23.5	0.002
Total	100.0	100.0	100.0	100.0	Gamma
	41	20	46	34	0.039
Risk Acceptance					
Agree	97.6	90.0	100.0	91.2	Chi-Square
disagree	2.4	10.0	0.0	8.8	0.121
Total	100.0	100.0	100.0	100.0	Gamma
N	41	20	47	34	0.505

The authors could find no empirical studies that examined the relationship between work experiences and optimism or realism traits for entrepreneurs. One might expect that previous work experience would impact entrepreneurs. Entrepreneurs who had had business experience would be expected to perceive optimism or realism differently from those who had not had experience. Those with experience in the line of business tended to be more realistic (65.9 percent) or more optimistic (65.0 percent). Those with no experience in the line of business were more fuzzy (46.9 percent) or mixed optimistic/realistic (41.3 percent).

Entrepreneurs with no operations experience tended to be more realistic (42.9 percent). Those with less operations experience, 1 to 5 years, were more mixed optimistic/realistic (40.0 percent). Interestingly, those with more experience, six or more years, tended to be more optimistic (52.9 percent) than those who had less or no operation experience.

Are entrepreneurs more optimistic or realistic if they have had any managerial experience? Entrepreneurs with no managerial experience at all were fuzzy (50.0 percent). Those with 1 to 5 year's managerial experience tended to be more mixed optimistic/realistic (47.6 percent). Entrepreneurs with six plus years of managerial experience tended to be more realistic (52.2 percent) or optimistic (53. 8 percent).

How about any managerial experience before they start the new venture? Entrepreneurs with no management experience before starting their business tended to be fuzzy (40.7 percent). Those with less than six years experience before starting the new venture tended to be more optimistic (50.0 percent). Those with six plus years managerial experience before starting the new venture

distributed evenly between mixed realistic/optimistic (38.5 percent), realistic (36.7 percent), and optimistic (31.3 percent). Managerial experiences in any part of their personal life seemed to be statistically significant between realistic, optimist, realistic/optimistic, and fuzzy entrepreneurs.

Table 6: Percentage of Experience by Type of Entrepreneurs Experience in the Line of Business

	Realistic	Optimistic	Both	Fuzzy
Yes	65.9	65.0	58.7	53.1
No	34.1	35.0	41.3	46.9
Total	100.0	100.0	100.0	100.0
N	41	20	46	32
Chi-Square	0.694		Gamma	0.235
Any Operation Experience				
None	42.9	35.3	28.6	30.8
1-5	20.0	11.8	40.0	30.8
6 +	37.1	52.9	31.4	38.5
Total	100.0	100.0	100.0	100.0
N	35	17	35	26
Chi-Square	0.328		Gamma	0.658
Any Managerial Experience				
None	13.0	7.7	14.3	50.0
1-5	34.8	38.5	47.6	31.3
6 +	52.2	53.8	38.1	18.8
Total	100.0	100.0	100.0	100.0
N	23	13	21	16
Chi-Square	0.047		Gamma	0.007
Management Experience Before Starting				
None	33.3	18.8	15.4	40.7
1-5	30.0	50.0	46.2	40.7
6 +	36.7	31.3	38.5	18.5
Total	100.0	100.0	100.0	100.0
N	30	16	39	27
Chi-Square	0.209		Gamma	0.339

Table 7 shows that a majority of entrepreneurs studied would start again. But realistic entrepreneurs (92.5 percent) and mixed realistic/optimistic entrepreneurs (93.6 percent) were more likely to restart than optimistic entrepreneurs (85.0 percent) and fuzzy entrepreneurs (88.2 percent).

Table 7: Percentage of Respondents Who Would Start Up a Business Again

	Realistic	Optimistic	Both	Fuzzy	
Agree	92.5	85.0	93.6	88.2	Chi-Square
disagree	7.5	15.0	6.4	11.8	0.647
Total	100.0	100.0	100.0	100.0	Gamma
N	40	20	47	34	0.771

Given that a majority of entrepreneurs would start their business again, what changes would they make, if any? Table 8 shows the changes that realistic, optimistic, both, and fuzzy entrepreneurs would make if they were going to start again. Realistic entrepreneurs (26.8 percent) were more likely to seek business counseling. Optimistic entrepreneurs (10.0 percent) were inclined to start on a more modest scale. Fuzzy entrepreneurs (17.7 percent) were more inclined to get more experience and optimistic entrepreneurs were less inclined to get more experience. Optimistic entrepreneurs (45.0 percent) and realistic entrepreneurs (22.0 percent) were more inclined to use different sources of funds. Realistic entrepreneurs (22.0 percent) and fuzzy entrepreneurs (20.6 percent) were two times more likely to choose a different location for their business than either optimistic or mixed optimistic/realistic entrepreneurs. Over 20 percent of all categories of entrepreneurs were inclined to have a better marketing plan. More time and money on advertising was more important to realistic entrepreneurs (19.5 percent) and mixed optimistic/realistic entrepreneurs (19.2 percent).

Defining target markets was more important to mixed optimistic/realistic entrepreneurs (21.3 percent). Having a better financial plan was more important to optimistic entrepreneurs (35.5 percent) and realistic entrepreneurs (31.7 percent). More cash was important to realistic entrepreneurs (31.7 percent) and optimistic entrepreneurs (30.0 percent). Having a better management team was more important to realistic entrepreneurs (21.3 percent) and fuzzy entrepreneurs (20.6 percent).

More research was more important to fuzzy entrepreneurs (14.7 percent) and realistic entrepreneurs (14.6 percent). Most of the entrepreneurs did not think that they needed a better business plan. More business training was important to optimistic entrepreneurs (30.0 percent), and realistic entrepreneurs (26.8 percent). Mixed realistic/optimistic entrepreneurs (38.2 percent) and optimistic entrepreneurs (22.0 percent) were more inclined to change nothing than other types of entrepreneurs.

Overall, finance, marketing, and more counseling and training are more important to entrepreneurs for future endeavors. This seems true for most entrepreneurs, but particularly true for realistic entrepreneurs.

Table 8: Percentage of Respondents Who Would Make Changes If Starting Again

	Realistic	Optimistic	Both	Fuzzy
Seek help from Business Counselor				
Yes	26.8	15.0	23.4	20.6
Observation N	41	20	47	34
Chi-Square	0.758		Gamma	0.654
Start on modest scale				
Yes	0.0	10.0	4.3	2.9
Observation N	41	18	45	33
Chi-Square	0.253		Gamma	0.523
Get more experience				
Yes	9.8	5.0	8.51	17.7
Observation N	41	20	47	34
Chi-Square	0.440		Gamma	0.324
Use different sources of funds				
Yes	22.0	45.0	10.6	17.6
Observation N	41	20	47	34
Chi-Square	0.015		Gamma	0.200
Different location				
Yes	22.0	10.0	10.6	20.6
Observation N	41	20	47	34
Chi-Square	0.374		Gamma	0.798
Better marketing plan				
Yes	22.0	20.0	25.5	23.5
Observation N	41	20	47	34
Chi-Square	0.961		Gamma	0.762
More time and money on advertising				
Yes	19.5	15.0	19.2	14.7
Observation N	41	20	47	34
Chi-Square Tests	0.925		Gamma	0.682

Table 8 (Continued): Percentage of Respondents Who Would Make Changes If Starting Again				
	Realistic	Optimistic	Both	Fuzzy
Define Target Market				
Yes	17.1	15.0	21.3	11.8
Observation N	41	20	47	34
Chi-Square	0.722		Gamma	0.708
Better financial plan				
Yes	31.7	35.0	21.3	26.5
Observation N	41	20	47	34
Chi-Square Tests	0.602		Gamma	0.410
More cash				
Yes	31.7	30.0	21.3	26.5
Observation N	41	20	47	34
Chi-Square	0.719		Gamma	0.465
Better management team				
Yes	17.1	0.0	21.3	20.6
Observation N	41	20	47	34
Chi-Square	0.169		Gamma	0.379
More research				
Yes	14.6	5.0	12.8	14.7
Observation N	41	20	47	34
Chi-Square	0.721		Gamma	0.865
Better plan				
Yes	17.1	15.0	19.1	17.6
Observation N	41	20	47	34
Chi-Square	0.981		Gamma	0.857
More business training				
Yes	26.8	30.0	19.1	20.6
Observation N	41	20	47	34
Chi-Square Tests	0.709		Gamma	0.378
Not change anything				
Yes	22.0	25.0	38.3	20.6
Observation N	41	20	47	34
Chi-Square	0.234		Gamma	0.737

CONCLUSIONS

This paper adds three new dimensions to the study of entrepreneurs — realism, mixed optimism/realism, and fuzzy. Little has been done in these areas. Since no specific realism measure could be found, the authors designed, tested and validated a realism test. Optimism has been studied, but largely outside entrepreneurship. The authors have measured entrepreneurial optimism for the first time and have discovered that while most entrepreneurs are optimistic, they are also realistic. These findings push entrepreneurship research into a new frontier. Many new research topics could be developed such as how venture decisions are derived and concluded, how entrepreneurs assess risks or accept risks, if entrepreneurs behave differently given different set of parameters in optimism and/or realism, and if specific traits influence learning and expectations. Further study on these concepts may lead to additional insights into the nature of entrepreneurs and entrepreneurship.

Since entrepreneurs are both optimistic and realistic, practitioners and entrepreneurial advisor can tailor their advising practices to this new understanding. Strictly optimistic entrepreneurs can be expected to react differently to consulting than those who are realistic or realistic/optimistic. Based on the findings of this study, advisors could expect to gain wider acceptance for their counseling among clientele. In addition, based on the responses, more attention should be given to finance and marketing training and assistance.

An understanding of entrepreneurs can lead loan officers and other service providers to a better understanding of their clients and their client's needs. From this additional insight, officers can provide direct counseling to their clients or refer them to agencies that can provide the needed assistance.

Is it better to be optimistic or realistic? A realistic outlook should improve the odds to avoid unnecessary loss, while an optimistic outlook emphasizes more on positive feelings. There does not seem to be a clearly defined boundary between optimism and realism from the psychological perspective. There also exist different forms of optimism that interact with realism, such as realistic optimism and conditional optimism. The purposes of this research were to determine if entrepreneurs were realistic or optimistic using one established measure and one measure designed by the research team. For the first time, as far as we can tell, a tool has been designed and tested to capture both optimism and realism in the entrepreneurship studies.

We have demonstrated that entrepreneurs are more realistic than optimistic. We discovered a significant proportion of respondents in this study were mixed optimistic/realistic. Furthermore, another group so called fuzzy entrepreneurs also exists. This is a new finding in the entrepreneurship field that has not been analyzed. Perhaps this finding represents a situation where more realistic entrepreneurs have survived and some optimistic entrepreneurs have survived or entrepreneurs become more realistic as they are in business. Additional research involving comparisons of nascent entrepreneurs and in-business entrepreneurs may shed light on this issue.

Much of the entrepreneurial literature seems to assume that entrepreneurs are optimistic without much research evidence and there has been no research on realism among entrepreneurs that we could find. Entrepreneurs who are realistic could be expected to assess risks different than optimistic ones. Perhaps those who are more realistic are the true survivors in the competitive world of new venture creation. It is also possible that learning experiences have changed entrepreneurs' perceptions on their own assessment of the new venture opportunities, and entrepreneurs have learned to be more realistic.

There were no significant differences among the different groups of entrepreneurs studied related to demographics. There were some interesting tendencies. Females tended to be more realistic and males tended to be more optimistic. Majority entrepreneurs tended to be more optimistic and mixed realistic/optimistic. Single entrepreneurs tended to be more realistic, while married entrepreneurs seemed to be more optimistic. Single entrepreneurs might need to be more cautious about their future investment and challenges, while married entrepreneurs might hold more optimistic expectations for their future. Younger entrepreneurs tended to be more optimistic than older entrepreneurs who tended to be more realistic. Younger entrepreneurs probably look at the life span differently from older ones – younger people usually assume that they have a longer time frame to work with, so as to hold more optimistic outlook for the future.

Entrepreneurial characteristics studied indicated that independence was more closely related to realistic, control was more related to realistic/optimistic, and risk acceptance was more related to realistic. Both realistic and realistic/optimistic entrepreneurs considered themselves more creative than either optimistic or fuzzy entrepreneurs, statistically significant difference exists. This is new finding that has not been explored before. Previous entrepreneurship studies only discussed a variety of entrepreneurial characteristics and traits, yet failed to examine any cross-effects or linkage between different characteristics or traits. Given the sample responses, we discovered that optimism or realism do not necessarily relate to other entrepreneurial characteristics. Further research is needed.

Entrepreneurship literature rarely discusses any relationship between work experiences and personal traits. Our study presented some new findings. Experience in the line of business was present in almost 2/3 of realistic and optimistic entrepreneurs. Over 30 percent of the entrepreneurs had no operations experience before starting, but optimistic entrepreneurs had the most operations experience. Managerial experience seemed to exist among all groups of entrepreneurs, but realistic and optimistic entrepreneurs tended to have more. Over 2/3 of the entrepreneurs studied had had management experience before starting their businesses. Whether people have had any experience does seem to relate to their personal traits – respondents who had no operation or management experience were more likely to be realistic or fuzzy, versus those who had some experiences and tended to be more optimistic.

Clearly a majority of all respondents would start a new venture again given what they have experienced. But realistic and mixed realistic/optimistic entrepreneurs were more inclined to do so.

More entrepreneurs would change finances and marketing and would avail themselves of counseling and training than other changes in starting again. Being optimistic or realistic did not seem to relate to what entrepreneurs had learned in the new venture creation process. Most of the entrepreneurs would like to change something in the way to start another new venture, regardless what their personal traits are.

CONTRIBUTIONS TO RESEARCH

The results of this study, although not representing the entire population of entrepreneurs, provide additional insights into entrepreneurs and entrepreneurship that have not been investigated and understood before:

We are among the first to utilize a psychological method to actually measure optimism and realism among entrepreneurs, and conclude that a majority entrepreneurs in our sample are optimistic and realistic.

Entrepreneurs can be optimists and realists at the same time. The nature of the world means that to be realistic we must normally be optimistic (More, 1998). Optimists display certain attitudes, not detached estimates of the objective probability of good and bad events in the future, to make personal commitments to certain modes of thinking and behaving (More, 1998). It is a way of thinking, generated by optimistic attitudes, that makes entrepreneurs unique.

From a research perspective, this study demonstrates that psychological methods can provide valuable tools for entrepreneurship research. These tools should be particularly useful in entrepreneurial behavioral research, a widening field of study.

FUTURE RESEARCH

Many aspects of this research could be expanded. It is important to increase the size of the sample to include a wide variety and more entrepreneurs. More entrepreneurs should be included from different cultural backgrounds, different ethnicity, different industries, different countries/regions and different stages of the new venture creation. In addition, studies of nascent entrepreneurs using the tools used here may shed additional light into the nature of entrepreneurs and the entrepreneurship process. It will be interesting to compare optimism or realism levels (using LOT-R or other psychological methods) among a diverse group of entrepreneurs, given a sufficiently large sample.

More studies could be oriented to investigate the impact of optimism or realism on entrepreneurial learning from both individual's perspective and business perspective. Our study only explored a small part of the optimism and realism and personal perception. We need better tools to explain how optimism differs from realism and pessimism. It is important to expand the objectives of the study to include entrepreneurs' assessment on business outcomes (sales, profits,

challenges, risks) and to understand how optimism influences the operation of the businesses. Many entrepreneurs have been influenced by natural disasters and economic fluctuations in recent years. Some of them have been exposed to unusual financial risks that make them extremely vulnerable in our economy. Studying optimism/realism and understanding how human nature affects expectations/outcomes in new venture creation will help service providers develop more effective coping strategies to assist entrepreneurs at risk.

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Articles for Volume 14, Number 2

ASSESSING MANAGERIAL DECISIONS USING THE DUAL SYSTEMS THEORY OF REASONING: FUTURE CHALLENGES FOR MANAGEMENT RESEARCHERS

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ABSTRACT

We focus on likely challenges that will be encountered by field researchers investigating managerial decision-making using theoretical frameworks based on the dual systems of reasoning. This decision-making theoretical framework is currently the subject of theory building research in the management literature (e.g. Dane & Pratt, 2007). Future field studies investigating how dual systems of reasoning affect consequential decisions made by entrepreneurs and managers in actual business settings are necessary for further development of this theory. Major issues that challenge the field researcher include choosing the decision or decisions to investigate, deciding on how to operationalize the criterion variable, consideration of alternate normative outcomes resulting from multiple legitimate goals of the decision-maker, the choice between measurements of the decision process or decision outcomes and choosing among possible operationalizations of predictor variables already shown to be significant factors in determining the extent logic-based reasoning is used in decision-making. We offer suggestions for dealing with many of these challenges and other issues in conducting field research investigating dual process theories.

INTRODUCTION

Decisions of major consequence occur in response to real life situations. Often these situations are very complex and require decision-making that occurs over lengthy periods of time. The theoretic framework based on two systems of reasoning draw a distinction between the reasoning processes employed in making these decisions (e.g. Sloman, 1996). One system is purposeful and rational, the other automatic and affective (Hamilton, Sherman & Maddox, 1999). These systems can coexist and influence decision-making behavior in everyday life (Epstein & Pacini, 1999). Although the terminology used to describe these two systems varies, the characteristics of the two systems are described in a similar manner. Epstein (1994) described the two systems as experiential and rational; Sloman (2002) characterized them as associative and rule-based, Stanovich and West (2000) and Kahneman (2003) have labeled them as System 1 and System

2. The System 1 or the experiential system describes a fast, effortless, intuitive reasoning process that is subject to emotional influences and which is often utilized to make many decisions in a near simultaneous manner. The System 2 or the rational system describes a slow, effortful, logic-based process that results in decisions that are made sequentially rather that simultaneously. The underlying assumptions regarding the use of the two systems are that System 2 reasoning requires a greater use of appropriate information and analysis (Kahneman 2003) and that a greater use of System 2 or logic-based reasoning by the decision maker will result in better solutions to more complex problems than a greater use of intuitive reasoning (Stanovich and West 2002).

While experimental research provides useful evidence regarding the nature of the dual systems and the significance of hypothesized factors that tend to enhance or inhibit the use of logic-based reasoning, certain distinctions between reasoning in an experimental setting and real-world decision-making are likely to limit generalizability of experimental results. While continued experimental research is clearly important for the further refinement of dual process theories, field research designed to help better understand how people make important decisions in everyday life settings should also be an integral part of this theory development. Because of the potential impact the quality of business related decisions by entrepreneurs or managers have on their company and its stakeholders, field research related to the dual systems of reasoning in business contexts is particularly important. However, future field research investigating how these consequential decisions are actually made, and how they could be made more accurately, faces challenges not faced by experimental research. This discussion will highlight some of these challenges to future field studies, and suggest alternative methods of meeting those challenges.

Individuals frequently make complex decisions in their various business roles such as manager, entrepreneur or director. Business researchers have an interest in improving individual decision-making in one or more of these areas. The dual process of reasoning theories show great promise in helping achieve a better understanding of decision-making behavior and, therefore, provide a pathway for its improvement. Field research that results in even modest improvements in this business decision-making has the potential to make a significant impact on society.

For purposes of this discussion, one common significant decision-making process will serve to illustrate some of the challenges field researchers face in investigating how the dual processes of reasoning affects how important business decisions are made. A typical decision-making process by an entrepreneur involved with creating a new venture will serve to illustrate some of the challenges to the researcher. The outcome of new venture creation decisions are important to these entrepreneurs because of the effect either success or failure will have on their personal lives and these decisions are commonly made by many entrepreneurs involved with a business startup. New ventures favorite less complex businesses in certain industries, due in part to low barriers to industry entry, and frequently have only one individual that serves as the primary decision-maker. Yet, although these ventures are often relatively simple, the study of the decision-making process surrounding the creation of this new venture will illustrate many of the complex issues field

researchers investigating the dual process theory of reasoning may face in numerous other research settings. The discussion will first consider field research issues related to the likely criterion variables reflective of the dual processes of reasoning, and then consider issues related to likely predictor variables whose relationships with those criterion variables will likely be tested in those field studies.

ISSUES RELATED TO THE CITERION VARIABLE

Experimental decision research often involves assessing outcomes of a single decision with a single correct answer. Field research may involve decision processes involving multiple related decisions with many alternatives that may vary as to degrees of correctness under multiple decision logics. The specific decisions to choose for study, methodological challenges, and alternative goals of the decision makers are examples of the type of issues field researchers are very likely to encounter.

The Decision(s)

An investigation into the decision-making surrounding the new venture creation process immediately presents the researcher with choices. The researcher may seek to investigate the degree decision outcomes reflect a correct result or the degree the decision process reflect a normative logic-based methodology. One discreet decision for study or some or all of the numerous decisions comprising the entire decision-making process may be investigated. Selection of a single decision for study from a decision sequence requires the selected decision to be somewhat representative of the type of reasoning employed in the sequence. Selection of a multiple decision sequence for study requires definition of the start and the end of the sequence. The field researcher may experience difficulty in determining these starting and stopping points.

Our hypothetical entrepreneur has likely decided early in the entrepreneurial process to start a business, what goods or services the business will offer and has tentatively decided on other basic parameters of the business. These parameters might include such matters as approximately where the business will be located, product or service mix and target market. As the commencement of operations nears for the new venture, the entrepreneur will typically have to make numerous related decisions regarding the specific location of the business, type of facility improvements that will be necessary, equipment and supplies that will be needed, the number of personnel to be hired, the amount of capital that will be required during the initial period of operations and so on.

Singling out one important decision for study from a process that involves numerous related important decisions is problematic. One decision may be made intuitively, and subsequent decisions required by that intuitive decision may be made using logic-based reasoning. For example, the entrepreneur may intuitively decide to open a business without benefit of research into the economic

desirability of that industry and then intuitively decide to locate the business in the current neighborhood of residence merely because of the familiarity of the area. However, when choosing between alternative locations for the business in that neighborhood, the entrepreneur could then utilize logic-based reasoning to identify and evaluate the reasonable alternative locations and make the decision. The field researcher must then determine if the two primary decisions, that were made intuitively, effectively precludes subsequent logic-based decision-making if an entirely logic-based decision-making process would not have yielded the alternatives that are now being subjected to a logic-based evaluation.

If one logic-based decision out of a series of intuitive decisions can be considered reflective of a logic-based process, the field researcher may need to demonstrate why the predictor variables of the logic-based reasoning method employed in the decision of interest did not uniformly predict logic-based reasoning in any other decisions in the decision sequence. If the researcher is limited to a sequence uniformly reflective of logic-based reasoning, the researcher will need to clearly identify the significant decision at the start of the sequence and take the position that any prior intuitive decisions in the sequence were of much lesser significance.

However, even if the "important" upstream decision can be identified and is found to be made using logic-based reasoning, there may be sufficient downstream intuitive decision-making to reduce the entire process to being reflective of intuitive reasoning. For example, the entrepreneur may logically chose to participate in an industry after concluding that it would likely result in increased income compared to likely current wage prospects, and logically choose to locate the business in an area with great market potential. However, because of the numerous demands on his or her attention as the startup date approaches, the entrepreneur does not take the time to explore alternate locations and opts for the first available location that was presented for consideration. As a result, the entrepreneur commits to a facility that is too limiting and has occupancy costs that are much higher than would have been incurred at other locations. The resulting reduced revenue and higher costs result in organizational performance that is materially lower than would have occurred if logic-based decision making would have extended through the whole decision sequence. In this example, one could argue that "downstream" intuitive decision-making converted what was an otherwise logic-based decision-making sequence into what was in effect an intuitive one.

Methodological Challenges

The selection of a sequence of decisions for investigation presents the field researcher with a methodological dilemma, particularly when there is a lack of homogeneity in the reasoning method used for the decisions in the decision sequence. In this case, the empirical results derived from aggregating the reasoning criterion scale scores for each decision in the decision sequence could be difficult to interpret when assessing the characteristic reasoning method employed by an individual, or the effect of the reasoning method on individual or organizational level performance. The

example in the previous section where initial decisions were made using logic-based reasoning and subsequent decisions were made using an intuitive process illustrates this point. The scores on each on these decisions could be aggregated to yield some sort of overall representation about the degree of logic employed in the decision sequence. Alternatively, the number of decisions in the decision sequence made intuitively could be compared to the number of decisions that were using logic-based reasoning to yield this representation. In either case, analyzing aggregated results that do not reflect a pattern of either highly intuitive or highly logical decision-making could be difficult.

The field researcher will also need to consider what weighting to give each decision in a sequence if the scores are aggregated. Equal weighting of the decisions needs to be carefully evaluated by the researcher intending to aggregate results. Certain decisions in our hypothetical entrepreneur's decision sequence are likely to be much more important in terms of likely impact on organizational level performance and an argument could be made that the scores on the more important decisions should be given more weight. While equal weighting of decisions may not be theoretically supported, lack of data supporting alternative weighting protocols may result in equal weighting of decisions by default.

The design of measurement scales also raises issues, some of which are at the heart of differentiating the group of dual process theories from other theories. Administering a scale that has items representing completely logic-based and completely intuitive reasoning as anchor points on a single scale with other interim points representing methods of reasoning that have differing combinations of logic-based and intuitive components conceptualizes the method of reasoning employed as a continuum. Alternatively, two points could appear on the scale, one representing intuitive and the other representing logic-based reasoning. This approach requires a single scale cut point that differentiates the two methods of reasoning. Using our example, this approach might require an *a priori* determination as to the point where the amount of due diligence transforms an intuitive process to a logic-based process. Thus, one approach presumes an integration of the two systems, the other dominance of one system or another in each decision (Hamilton et al., 1999). Utilization of an *a priori* cut point presumes a certain level of theoretical refinement. Unfortunately, many fields such as entrepreneurship have not reached consensus on defining either normative outcomes or processes, much less specifying their threshold conditions that could be translated into cut points on a survey instrument.

It is likely any survey instrument will use ordinal scales. Unless the researcher treats the scale like an interval scale, the resulting analysis may possibly require the use of nonparametric statistical techniques (Velleman & Wilkinson, 1993) and complicate the aggregation of scores from multiple decisions. Choosing to treat the system of reasoning criterion variable as a dichotomous or continuous criterion variable affects the analytic methods the researcher may employ. Measuring the reasoning system as a continuous variable offers the ability to utilize regression or structural equations modeling to test relationships between hypothesized predictor variables and the continuous reasoning criterion. Measuring the reasoning system as a dichotomous variable dictates

that logistic regression or discriminant analysis should be used. Because of the requisite assumptions for discriminant analysis, logistic regression is preferable when dealing with a criterion variable with two possible values (Cohen, Cohen, West & Aiken, 2003).

Experimental research usually assesses decision-making in an environment where contact with other individuals during the decision process is eliminated. The field researcher assessing a decision-making process after the fact cannot assume that the process was done completely unaffected by interactions with one or more other persons. A study by Smith, Peterson and Schwartz (2002) illustrates how middle managers facing ambiguous situations frequently consult other persons for guidance and the pattern of consultation varies between cultures.

Patterns of communication with other individuals also present measurement challenges to the field researcher. The degree of logic-based reasoning employed may be related to the quantity and quality of consultation with other individuals. The entrepreneur will likely derive a decision-making benefit from consultations with other experienced entrepreneurs and qualified professional advisors. Measuring the quantity and quality of those consultations presents their own unique methodological challenges. For example, the entrepreneur can have fifteen consultations with one individual or one consultation with fifteen different individuals. The field researcher can measure the number of interactions between the entrepreneur and a second party, or merely the number of second party consulted. The researcher may also attempt to measure the quality of the consultation by attaching a weight to the party consulted based on professional credentials, industry experience or some other criteria. Patterns of consultation or communication may prove useful in explaining a portion of the variance in the method of reasoning employed, but also have the potential to influence the relationships between individual-level predictors and reasoning system criteria.

Another issue that researchers will consider in the research design is to what extent the study will be longitudinal. Typically, that would involve the decision maker's recall of the decision process for all of specific individual decision elements if a process-based criterion variable is used. Similarly, the use of an outcome-based criterion variable would also require recall of the elements of the decisions that were made. However, use of an outcome-based criterion would also require a measure of outcome stemming from the time of decision(s) to the time of the field work. The field researcher choosing an outcome-based criteria may have difficultly in assessing whether the time from the decision to the gathering of data has been sufficient to allow the effect of decisions to substantially impact performance and yet not so long that other variables have been able to intervene and also materially affect performance.

Alternative Logics of Decision Makers and Measurement of Outcomes

Outcome-based decision criterion variables presume the existence of an optimum result or set of results. While economic theory has traditionally presumed a decision maker sought to maximize economic utility, other goals that correspond to alternative decision logics are no less

important or rational (Schneider & Barnes, 2003). Normative decision outcomes can be related to achieving the logic-based goals of the decision maker or derived as representing best reasoning practices observed for a particular class of decision makers. Sarasvathy (2001) provided an excellent example of how a normative solution could be derived from an investigation into the best practices of a particular group of subjects. She investigated the decision-making behavior of entrepreneurs that were highly successful. She discovered they used a logic that she termed as effectuation. The basis of the logic used by that group was to maximize objectives based on a given set of means rather than the logic of seeking means to achieve given objectives.

The business literature has recognized alternative normative goals for business decision makers (e.g. Stewart, Watson, Carland & Carland, 1998). One logic is based on maximizing current earnings and achieving financial stability; another is based on maximizing growth. Owners of existing small businesses have been found to manage primarily to provide an acceptable, consistent level of income; the more entrepreneurial individuals have been found to manage with less emphasis on current earnings and more emphasis on growing the business as quickly as possible. Entrepreneurs and small business owners may choose different decisions alternatives based on their individual basis of logic that stem from their differing goals. Both logics are considered normative. In addition, the owner of a home-based business could employ an additional noneconomic logic based on the goal of maximizing time spent with his or her children that could be also considered normative. Thus, different researchers could conclude that any of these logics and possibly other additional logics could be considered normative in assessing important startup decisions made by entrepreneurs.

The field researcher using decision outcomes as the criterion variable will need to decide which logic or combinations of logics should apply in each research context in order to develop instruments to measure the decision-maker's behavioral conformity with that logic. However, the possible lack of comparability between studies that define different logics as normative could likely result in a variety of results within that research context and between various other research contexts. For these reasons, measurement of the reasoning system employed criterion by making an assessment of the decision-making processes that were used could be preferable to measurement of decision outcomes. However, an assessment of the decision-making process is not accomplished without overcoming significant challenges as well.

Assessing Decision Processes

This discussion has previously alluded to some of the practical difficulties with outcome-based criterion measures of decision-making. Different logics can result in different normative solutions and as result outcome-based studies are likely to be difficult to compare. Research studies in which the degree of logic used in the decision process is the criterion variable reflecting the type of reasoning employed can provide the basis for greater comparability among studies in different

research domains. For example, decision-making processes that are made in a very short time period with little or no information search and analysis or consideration of reasonable alternatives could likely be described as intuitive regardless if the process involved starting a business, selecting a personal residence, choosing a career or educational institution. Similarly, decisions that are made carefully after much information search, consultation, analysis and evaluation of alternatives could be considered logic-based in a number of research contexts. This would be true even if the decisions made using logic-based reasoning were ultimately found to be incorrect.

Consider the elements that are necessary for logic-based reasoning in a complex and dynamic real world environment that these entrepreneurs will be facing. Requisite knowledge and experience, together with the desire and the opportunity to employ logic in the decision process, are likely prerequisites for their logic-based decision-making. Our hypothetical entrepreneur serves as an example of how these requirements will limit the use of logic-based reasoning in many cases.

Not all entrepreneurs possess a formal business education. This would lead one to expect that many important decisions would be made intuitively simply because these entrepreneurs would not know what issues are important, what information about these issues is necessary to make a logic-based decision or where that information could be found (Cooper, Folta & Woo, 1995). In addition, unless they have received a formal business education, they may have never been exposed to analytic tools that are necessary to evaluate what information has been gathered. If only a small minority of these entrepreneurs possess the requisite tools to make these decisions logically it is unrealistic to expect they would employ a decision process that reflects logic-based reasoning. The entrepreneurs that have the requisite experience and education but possess certain traits, such as a low need for cognition, or are subject to situational constraints, such as severe time pressures, would also be likely to engage in intuitive decision-making (Kahneman, 2003).

Thus, one would expect typical samples of entrepreneurs to include a majority of individuals that make practically all of the important decisions rapidly and intuitively, a minority that makes some of the decisions intuitively and the rest logically and a very small minority of decision-makers that make virtually all the decisions logically. An exploratory study found this was indeed the case (Leaptrott, 2006). The majority of respondents in that study reported only cursory amounts of information gathering or analysis before making important functional new venture decisions. Approximately one third of respondents did not seek information from anyone about where to advertise the business, where to get inventory or supplies for the business or how much money it would take to start the business and made those decisions in one day or less. A majority of participants only sought information from one person or less, and spent a week or less to gather information, analyze it and reach a decision.

Assume for the sake of discussion that this distribution of decision-makers was typical and would commonly be encountered in several research contexts. If this is the case, the more pressing research priority would appear to be to develop and test interventions hypothesized to improve decision-making by the majority that primarily use an intuitive method, rather than to attempt to

further refine the definition of the normative logic-based decision-maker. The related methodological challenge would be to detect the threshold where the decision-making stops being primarily intuitive and begins to be logic-based. An argument could be made that process-based criterion variables could be more helpful in identifying elements of the decision process that could be more easily improved than an outcome-based criterion variable because relatively few decision-makers achieve the optimal decision outcomes.

OPERATIONALIZING LIKELY PREDICTOR VARIABLES

Field studies frequently involve the administration of survey instruments to study participants. Because of the negative relationship between instrument length and complexity and the response rate, the field researcher conducting survey research faces constraints as to the scope of a particular research project. Therefore, the field researcher may not be able to simultaneously assess the relationship between all likely predictors and the method of reasoning employed. The use of test studies and exploratory factor analysis often results in a modified instrument for use in the main study that will hopefully yield an acceptable response rate and meet the study objectives. Kahneman (2003) has summarized several factors that have been found to affect the degree System 2 cognition is utilized. How field researchers may operationalize some of these factors as predictors of the method of reasoning employed will now be discussed.

The Need for Cognition

Cacioppo, Petty, Feinstein and Jarvis (1996) define the need for cognition as "a stable individual difference in people's tendency to engage in and enjoy effortful cognitive activity" (1996, p. 198). Cacioppo and Petty (1982) developed an instrument to measure an individual's propensity to engage in such effortful cognition. Researchers have used variations of this instrument in over 100 empirical studies and have demonstrated that "…individuals low in need for cognition were likely to endorse items depicting heuristic rather than vigilant or effortful information processing, whereas individuals high in need for cognition were likely to endorse items depicting effortful rather than heuristic information processing" (Cacioppo et al., 1996, p. 202).

Cacioppo et al. note "…individuals high in the need for cognition are more likely to seek information about a wide range of tasks, issues and current events than are individuals that are low in need for cognition" (p. 238). The process of gathering information and considering alternative decisions regarding new venture issues is often time consuming, expensive and difficult. Individual who embrace cognitive activity rather than avoid it are more likely to be motivated to undertake the challenges of information gathering and put forth the cognitive effort required to analyze it. There is evidence that is indeed the case. Subjects higher in the need for cognition desired to see more information than subjects that were lower in the need for cognition (Verplankern Hazenberg &

Palenewen, 1992). In addition, subjects with a higher need for cognition put more effort into external information search prior to making a decision (Verplanken, 1993).

Measuring the need for cognition in a field study is relatively straightforward endeavor involving administration of a version of the need for cognition scale as part of the survey instrument. One version of consists of a rather parsimonious 18 items with the anchors "extremely characteristic" and "extremely uncharacteristic" as anchors on 5 point Likert-type scale.

Intelligence

Stanovich and West (2002) suggest that higher intelligence is predictive of a higher usage of the rational or System 2 mode of cognitive processing. Their empirical studies utilized a sample of university students attempting to solve either a conjunction fallacy reasoning problem (1998b) or a variety of abstract reasoning problems (1998a). They found the average SAT scores of correct responders were significantly higher than the scores of incorrect responders. They also noted that the effects of differences in intelligence were higher when the cognitive tasks were more difficult.

While some of the decisions the entrepreneur often faces are routine and could be made correctly with little cognitive processing, many important decisions involve great uncertainty and unfamiliarity with elements of the environment the new venture will face. Consequently, substantial cognitive processing could be required to correctly analyze the new venture's environment and provide an appropriate organizational response. As a result, studies such as those by Stanovich and West (1998c), would suggest that the more intelligent entrepreneur would be more successful making decisions that require substantial information gathering and analysis.

Intelligence has been a predictor of success in many occupational situations. Schmidt and Hunter (1998), citing findings from a meta-analysis on predictors of job performance, reported intelligence was the best job performance predictor. The correlation was highest for professional-managerial jobs and lowest for completely unskilled jobs. These results suggest that professional and management jobs more often require intelligence in decision-making to a greater degree than the more unskilled jobs.

The selection of an intelligence measurement technique presents practical challenges to the researcher engaged in a research design based on surveying busy respondents. The length of such an instrument may degrade the ability of the instrument to measure other variables of interest. This limitation would likely also apply to many other research contexts. One parsimonious approach to the measurement of intelligence has been to use the amount of education as a proxy for intelligence. Ceci and Williams (1997) report correlations of between .50 and .90 between intelligence and the amount of schooling one receives, with correlations of .50 to .60 typically resulting. Thus, field studies using intelligence as a predictor variable could consider assessing intelligence by measuring the respondent's years of formal education with a one-item scale. Conducting field research in a large organizational setting may allow a field researcher to access the results of any organizationally

administered test of general mental ability. Another field research alternative is to administer a parsimonious measure of general mental ability such as the Wonderlic Personnel Test. However, even though assessment tools such as this typically can be administered in 10-15 minutes, the choice to administer an intelligence measure will likely decrease the ability of the researcher to assess other predictor variables.

Exposure to Statistical Thinking and Other Analytic Tools

Kahneman (2003) lists exposure to statistical thinking as a factor that is positively correlated with System 2 cognitive processing. Several empirical studies have investigated the utility of such exposure on decision-making. Studies by Jepson, Krantz and Nisbett (1983) and Fong, Kratnz and Nisbett (1986) provided evidence to support a reduction in the use of incorrect inferential rules decision-making as a result of some statistical instruction. Kosonen and Winne (1995) found evidence to support the benefits of exposure to statistical thinking to everyday problem solving by students of various ages. These results tend to suggest that the incidence of System 2 reasoning will increase when the decision maker possesses analytic tools, such as statistical training, that might have gained from education or experience.

The implications of the relationship between prior mastery of analytic tools and their use in logic-based reasoning associated with solving complex reasoning problems possibly extend far beyond this context. The individual is more likely to use analytic tools that have introduced to them, primarily through formal education, than an individual who has not been exposed to them and would therefore have to develop these analytic tools independently before using them.

Different decision-making contexts may require different analytic tools. Analytic tools that may be useful to the entrepreneur in making decisions related to a new venture might include an understanding of statistics necessary to evaluate the estimated probabilities of various occurrences and the likelihood that strategies formulated in contemplation of those occurrences would have the intended effects. The list of other analytic tools that would help logic-based reasoning efforts by an entrepreneur is potentially a long one. It includes knowledge about the use of a business plan preparation and presentation process that would require a detailed analysis of many aspects of a new venture. In addition, an education in the business-related academic disciplines of accounting, management, marketing and finance would provide many analytic tools that the entrepreneur could apply to logic-based reasoning related to new venture creation. The experience an entrepreneur may have in the industry environment of the new venture will also likely provide analytic tools suitable for that particular environment. Cooper, et al. (1995) found that entrepreneurs will relevant industry experience performed more information search, presumably due to their familiarity with what information was important for new venture success and where they could obtain that information.

Assessment of the respondent's exposure to analytic tools that are relevant to the research context can be assessed indirectly with single item scales inquiring about particular educational

activities such as specific mathematics, science or business courses taken, or assessed by having respondents answers questions or solve problems that would require specific knowledge of the analytic skill of interest.

Time Pressure and Concurrent Involvement in Multiple Cognitive Tasks

Kahneman (2003) also has identified time pressure and concurrent involvement in multiple cognitive tasks as factors that tends to inhibit logic-based reasoning. Sources of time pressure and concurrent cognitive tasks can vary greatly and can be very domain specific. These factors can inhibit logic-based reasoning by the entrepreneur starting a new venture in a number of ways. Commitment deadlines for equipment, inventory, facilities and advertising can occur far in advance of the actual commencement of operations. The limited capital resources of the new venture can limit the duration and scope of the information gathering and analytic processes. The sheer number of decisions the entrepreneur has to make in a usually short time period limits the amount of cognitive resources that can be used for each.

Ordonez and Benson (1997) found empirical evidence to suggest that decision makers often expedite the decision process when under time pressure. Expediting the decision-making process can result in behavior that includes switching to simpler decision strategies, relying more heavily on negative information and reducing the input of information. The entrepreneur that is under time pressure might likely gather widely varying amounts of information about a range of alternatives and analyzing a small subset of attributes possessed by them rather than gathering an equivalent amount of information about each alternative and analyzing a substantial number of attributes of each (Verplanken, 1993).

Gilbert (2002) provides empirical evidence of the decision-making effects of concurrent involvement in multiple cognitive tasks, particularly with respect to correction of initial categorizations. His research was based on the premise that "conscious attention is a scant resource" (p. 169). As a result, concurrent involvement in multiple cognitive tasks reduces the ability of an individual to use information in decision-making. He offers evidence of the effect that initial categorization uses fewer cognitive resources than subsequent corrections to that categorization. His research has shown that information relevant to the correction of an initial categorization is often noticed but not utilized. He has found evidence that self-regulation by the individual involved in routine everyday tasks can create enough cognitive busyness to limit the amount of information that is utilized in correction of initial categorizations.

Many events, relationships or roles may be both a source of time pressure and concurrent cognitive involvement for a decision-maker over extended periods of time. While experimental research may manipulate the effects of time pressure and concurrent cognitive involvement separately, the field research may face a much more difficult task in assessing the individual effect of theses factors. One can easily envision the limitations on logic-based reasoning that might result

when the entrepreneur is immersed in a multitude of ambiguous and uncertain situations while facing decision deadlines during the startup and initial operation of a new venture. Family matters or other employment or business commitments could be examples of factors that enhance both a state of cognitive busyness and perception of time pressure that limit the decision maker's ability to engage in logic-based reasoning.

The field researcher investigating the effects of these factors on decision-making would be well advised to engage in preliminary qualitative research to develop an understanding of what roles, events or activities serve as sources of time pressure or cognitive busyness to the extent that they are likely to impact the reasoning method employed in making significant decisions. For example, if the decision maker's family or occupational role is found to be a common source of time pressure and cognitive busyness, measures relating to family-work conflict (e.g. Netemeyer, Boles & McMurrian, 1996) or family functioning (e.g. Olson, 1991) might be considered for inclusion in the survey instrument.

The measurement of predictor variables in testing relationships with criterion variables reflective of the type of reasoning system employed may perhaps present a lesser challenge to field researchers that the measurement of the criterion variables themselves. Many measures of these likely predictors have been previously operationalized and used in field studies performed in other contexts.

CONCLUSION

Much of the content of this discussion was derived from efforts to perform an earlier exploratory study (Leaptrott, 2006) that was designed to gain a perspective on how frequently each type of reasoning was employed in an important decision-making sequence by examining the decision processes involved. The study tested the significance of the relationship of between predictor variables and the use of logic-based reasoning in that reasoning sequence. While reporting specific results of the study are beyond the scope of this discussion, the general findings are of interest in providing a context for the present discussion and future theory development. The study included responses from 187 childcare entrepreneurs in Florida. Approximately 55% had no more than a high school education, 20% received an associates degree with the remaining 25% had received a bachelors or masters degree. About 50% had never taken a college level business class, about 23% had taken 4 or more classes, with the balance taking 1-3 classes.

Several typical startup decisions, such as the amount of money required for startup and which professional advisors to retain for the business, were selected as components of the decision sequence to be investigated and the decision process approach was selected to serve as the criterion method for determining the extent logic-based reasoning was employed. Four elements of each decision's process were chosen to represent the extent the decision process reflected the reasoning method. These elements were the number of people that served as sources of information, the length

of time it took the decision maker to gather information and make a decision, the number of alternatives considered and the number of factors the decision maker considered when choosing between alternatives.

The frequency of responses displayed a consistent pattern that tended to reflect primarily intuitive reasoning. About 1/3 of respondents did not seek information from anyone, made the decision in a day or less, and considered no alternatives. Approximately 20% sought information from one other person, took between one day and one week to make the decisions and only considered one alternative. At the other end of the spectrum, less than 10% sought information from more than 5 people, took more than 6 months to reach the decisions and considered four or more alternatives.

These results have several possible implications for future research and theory building. If we truly live in a world where intuitive decision-making is by far the predominant decision-making method even for very important decisions, research priorities and methodologies should reflect that reality. There appears to be little utility in engaging in much debate about the threshold for logic-based reasoning. It may never be clear exactly when that threshold level is reached. However, there appears to be much utility in improving the decision-making by the large numbers of characteristically intuitive decision makers. This is certainly true for entrepreneurs. The new business four year failure rates are approximately 50% (Phillips & Kirchhoff, 1989). The high new business mortality rate demonstrates that even small improvements in otherwise intuitive decision-making by entrepreneurs could have a tremendously positive social and economic impact.

In the present example, the great majority of the decisions that were assessed clearly should be described as having been made intuitively. It is very unlikely that a childcare care entrepreneur could reach a logic-based decision in a day, or even a week, and do so by getting information from at most one person. It is also unlikely that a childcare entrepreneur would acquire knowledge about business-related topics such as business plan preparation, accounting, new venture financing, or marketing outside a formal higher education setting. In addition, it would be difficult for such an entrepreneur to know what information to seek or where such information could be found without possessing this foundation of knowledge. In this exploratory study, the correlation between the number of college business courses taken and the degree logic-based reasoning was employed in making those business decisions was approximately .30. Although the correlation was significant, it is possible that the correlation wasn't higher because the method of measuring the type of reasoning employed criterion variable was not sufficiently refined. The criterion was operationalized in this study as an interval scale with items reflecting the two methods of reasoning as anchors. These scales represented intuitive-based reasoning as a speedy process with little or no information search and analysis and a logic-based reasoning as an extended process utilizing many information sources and substantially more analysis.

The issue of how best to represent the dual processes of reasoning in a field setting awaits further development. In many field research settings, what would constitute a normative process

or outcome is not yet resolved. The issue of what constitutes a normative entrepreneurship model of new venture creation is far from resolved. This lack of consensus on what decision outcomes or processes are normative obviously limits the rate of progress of decision-making research in the field. However, there is much research that can be done while the nuances of defining normative outcomes or processes evolve. In many research settings, such as in the present example, it is possible to identify decision-making behavior that is clearly intuitive. It is also possible to identify behavior that constitutes a reasonable improvement over what is clearly intuitive. The current array of experimentally-supported predictor variable can be tested for significance in making modest decision-making improvements. Much future research is necessary to explore how exposure to specific analytic tools gained from a formal education, consultations with professional advisors, communications with members of social networks, or life experiences contribute to the use of logic-based reasoning either directly or indirectly through interaction with other individual-level or situational variables. Despite the challenges to executing field research programs in this research domain, the potential societal rewards justify the time and resources that it will take to overcome them.

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INSIGHTS INTO ENTREPRENEURIAL BEHAVIOUR IN INDIAN FIRMS

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ABSTRACT

Entrepreneurial behaviour to exploit the resources within an organization is a means to maintain competitive advantage and improve financial performance. This papers aims to identify the determinants of such entrepreneurial behaviour that exist in Indian firms. Through the data from a survey based questionnaire, a conceptual model is proposed. Using factor analysis, six factors that determine entrepreneurial orientation are deduced. It is verified that firms with entrepreneurial behaviour have a distinct improved financial performance. It is concluded that entrepreneurial behaviour and the corporate strategies there from, significantly orients the firms to more dynamic capabilities.

Keywords: entrepreneurial orientation – determinants – firm performance

INTRODUCTION

Human behaviour in organizations is a function of both the "person" and the working environment. Entrepreneurial behaviour then relates to the actions taken by its members to discover, evaluate and exploit the resources to uncover and seize new opportunities within the organization. The outcomes of this behaviour include enhanced self-image and financial rewards. Such actions benefit the organization by establishing competitive advantage through new products/markets, economic gain and broadening of the technology portfolio. Entrepreneurial behaviour continues to be seen as an important path to competitive advantage and improved performance in firms of all types and sizes.

Entrepreneurial orientation encapsulates the firm-level processes, practices and decision-making style that motivate entrepreneurial behaviour. It consists of innovativeness, pro-activeness and risk-taking. Innovativeness reflects a firm' tendency to enter into experimentation, support new ideas and depart from established practices. Pro-activeness refers to the propensity to anticipate future needs and changes in the operating environment and to pioneer new methods and techniques. Risk-taking denotes the willingness to make investments in projects that have uncertain outcomes. Corporate entrepreneurship refers to creating entrepreneurial culture within any organization. Corporate entrepreneurship arises from growing levels of global competition, technological changes, innovations and improvements in the market place. The goal of such a culture is to enhance the

innovative abilities of employees and at the same time increase organizational success through creation of wealth.

Corporate entrepreneurship strategy is recognized as a strategy to seek competitive advantage principally through innovation and entrepreneurial behaviour. It provides a complex set of challenges to direct or redirect resources towards establishing effective market growth.

Indian firms today have a global presence. With the increasing uncertainties in the market and the need to sustain the growth, firms have to recognize their entrepreneurial orientation and build a suitable corporate entrepreneurship strategy. As an aide, this study focuses on determining the variables of entrepreneurial behaviour and building up a model for entrepreneurial orientation.

LITERATURE REVIEW

In his paper, Zahra (1993) proposes a revised integrated model to the earlier one by Covin and Slevin (1991). The model brings out the association between a company's entrepreneurial posture and the various internal and external factors that influence it. The study by Kemelgor (2002) identified the determinants of entrepreneurial orientation in corporate – number of patents, return on sales, and number of new inventions. Corporate entrepreneurial strategy was then based on opportunity recognition, planning flexibility and locus of planning. The paper assessed not only the entrepreneurial orientation of firms in Netherlands and compared it with that in US firms but also examined to see if such an orientation existed in the firms. In a study of 1067 firms in six countries, Kreiser et. al. (2002) establishes a psychometric scale to measure entrepreneurial orientation of firms. The construct uses a measure that includes the three important dimensions of entrepreneurial orientation: innovation, pro-activeness, and risk-taking propensity. Results of the study support the entrepreneurial orientation as consisting of all three dimensions. Jantunen (2005) indicates that a firm's entrepreneurial orientation has a significant effect on the international performance given by international sales as a percentage of the total sales and by the number of countries in which the firm operates. Entrepreneurial orientation was conceptualised as consisting of innovativeness, pro-activeness and risk-taking propensity. Dynamic reconfiguration of a firm's capabilities for entrepreneurial orientation has a significant impact on the international performance.

Souitaris (1999) presents a portfolio model of the determinants of technological innovation. The model comprises of four distinct categories: external communication, technological capability, strategic and economic variables. The author reviews the application of the model in two different studies. The focus of the study by Hornsby et. al (2000) was to determine if there are differences between the U. S. and Canadian managers in terms of innovative behaviour. The authors examined the relationship between six corporate entrepreneurship factors and entrepreneurial behaviour.

Ireland et. al. (2003) pinpoints the factors that trigger a corporate entrepreneurship strategy before highlighting the elements that go to form the strategy. Finally, the authors discuss the important consequences of corporate entrepreneurship strategy in organizations

Collins et. al. (2004) established the relationship between the need for Achievement (nAch) and entrepreneurial behaviour by meta-analysis. The author finds a statistically significant correlation between nAch and entrepreneurial performance measured by the extent to which respondents overcome obstacles, utilize resources for help, compete, and improve their skills. Kuratko et.al. (2005) presents a model of middle level managers' Entrepreneurial Behaviour. The behaviour of middle level managers is influenced by the outcomes of two components: individual and firm. Such behaviour is a necessary step to achieving various organizational goals leading to increased profitability and corporate entrepreneurship. Petrakis (2005) establishes the relationship between the variables associated with entrepreneurial behaviour: environmental, cultural, personal motives and traits and the three different aspects of entrepreneurial risk: risk propensity, risk perception, and the firm's risk undertaken. The author determines the factors that significantly correlate with entrepreneurial risk.

ENTREPRENEURIAL ORIENTATION

The conceptual model (figure 1) for entrepreneurial orientation in a firm is based on the entrepreneurial behaviour in the firm. Entrepreneurial behaviour can be either induced or autonomous. Induced entrepreneurial behaviour is a top-down process in which the firm's current business goals and strategy shape the entrepreneurial actions that go to develop new products or processes. Autonomous entrepreneurial behaviour on the other hand is a bottom-up process in which the firm's new products and processes stem from the culture and structure that provide sufficient autonomy and recognition (rewards) to generate new ideas. Such behaviour arises from the desire to be independent and the urge to enjoy freedom at work.

This paper highlights the determinants of entrepreneurial orientation that are linked to the firm's performance.

External Determinants of Entrepreneurial Orientation

Acting as an entrepreneur means changing the methods, practices and processes to implement promising *technologies*. Managing such technologies therefore is a means to innovation. Forecasting and planning for new technology is necessary to instil entrepreneurial orientation in firms. The other key determinant of entrepreneurial orientation is *competitive aggressiveness*. *Competitive aggressiveness* is a function of *competitive posture* and *competitors' actions*. It refers to a firm's reaction to directly and intensely challenge its competitors in order to achieve first entry or improve existing operating processes/administrative techniques/systems. In other words, it simply

means gaining a competitive advantage by outperforming the industry rivals. *Competitive posture* refers to the perception about the existing gap. Awareness of this gap triggers the *aggressiveness* within a firm. Rather than responding to actions which competitors' initiate, *competitive aggressiveness* is the urge to gain a competitive advantage.

Internal Determinants of Entrepreneurial Orientation

Autonomy

Autonomy is the freedom granted to individuals or teams to exercise their creativity and champion promising new ideas. In other words, it refers to actions taken free of organizational constraints. *Autonomy* is a function of extent of delegation, hierarchical structure and ownership. *Innovativeness* basically means departing from the existing technologies or products or practices. It reflects a firm's tendency to engage in and support new ideas, experimentation, and creative processes that may result in new products, services, or technological processes.

Risk Taking

Risk taking is the degree to which employees are willing to make large and risky resource commitments. Entrepreneurial orientation depends on the extent to which organizations encourage high-risk projects, not having constraints on either resources or returns, and accepting costly failures rather than venturing into only "tried-and-trusted" projects.

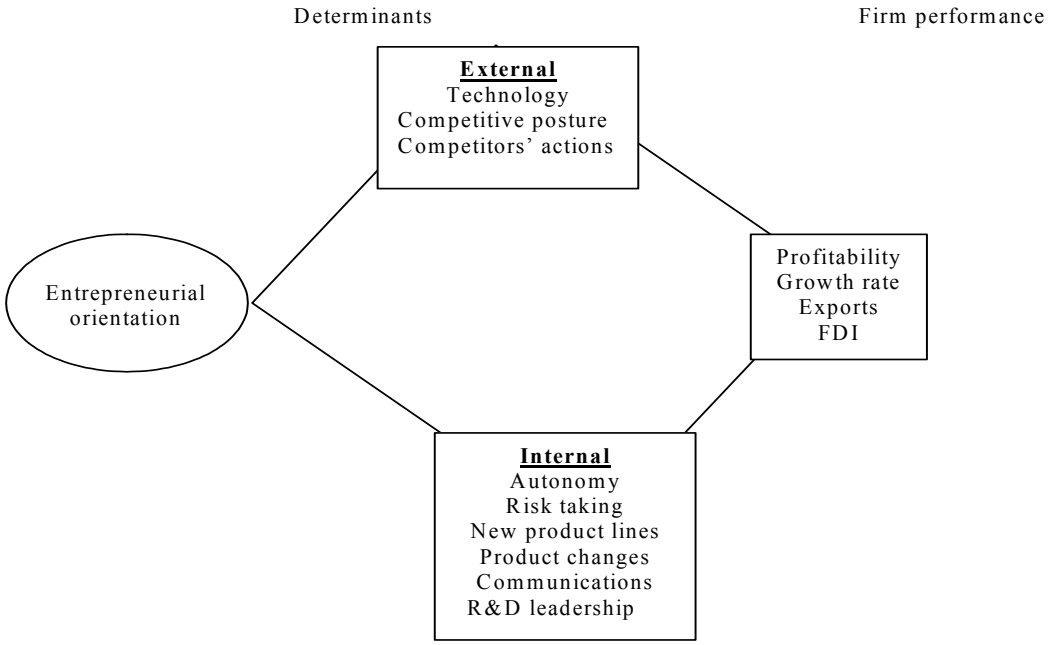
Pro-activeness

Pro-activeness relates to how a firm seizes market opportunities and acts optimistically in products/processes/technologies. It reflects the firm's tendency to lead instead of being a follower. The internal environment and the organizational structure/culture should ensure effective *Communications* between employees and departments. Such networking increases the knowledge base for entrepreneurial orientation.

Entrepreneurial orientation

Entrepreneurial orientation determined by the above external and internal independent variables of the model is directly related to the financial performance of the firm given by the dependent variables: *growth rate*, *profitability*, *percentage of exports*, and *foreign direct investments*.

Figure 1: Entrepreneurial Orientation



THE METHOD

The study is based on primary data collected through a structured questionnaire administered to both manufacturing and service sectors in India.

Sampling Frame

The sampling frame chosen for this study are the firms listed under "A" and "B1" categories of the Bombay Stock Exchange (BSE). Online questionnaire was created and individual emails sent to the addresses obtained from the CMIE database under both the above categories. In the final count, responses from 85 firms (response rate of 42.5%) were received and used for the analysis. The survey was carried out between January 2007 and March 2007.

Scope And Limitations

The scope of this study covers all industries in India without any discrimination in the business domain. It is applicable to both manufacturing and service sectors. The results of the study are admissible to the firms in the Indian sub-continent. Further research has to be done to extend these results to other countries.

The empirical data for the study is drawn from a dataset collected using the structured email questionnaire. 31 questions with a 7-point Liker scale to test the hypotheses based on the above variables were formulated. Demographic data to determine the firm performance – percent growth rate, percent increase in profitability, percent earnings from export, and percent FDI were included in the questionnaire. Pre-tests for getting feedback regarding the clarity of the survey were initially conducted with 10 companies of varying size in different sectors. Necessary changes were made before the questionnaire was put online and sent to the remaining elements of the chosen sampling frame. The basic characteristics of our sample are shown in table 1 below.

Table 1: Firm Categories

	Banks	Services	Manufacturing	Total
No. of firms	10	34	41	85
% of firms	12	40	48	100

About 50% of the respondents were from the service sector while 40% were from the manufacturing sector. Banking sector was represented by 12% of the sample size.

ANALYSES OF RESULTS

The first question to be examined was whether there were differences between the perceptions of the respondents in the manufacturing and service sectors. It is verified that there is no statistical significant difference in responses between the manufacturing and service sectors. Comparison of the mean and standard deviations of the manufacturing and service sectors for all the variables of study showed insignificant difference.

Factor Analysis - Data Reduction

This was done in 2 stages.

1st stage:

Taking the components of study, it was found that 10 components with an Eigen value of more than 1 accounted for 71.248% of the total variance. The model under this study aims to test the hypothesis of six distinct variables that determine entrepreneurial behaviour. In order to reduce the data set further, factor analysis was done in the 2nd stage, eliminating 4 of the less significant components.

2nd stage:

Based on the relationships in the correlation matrix, using the principal component analysis, the original set of variables is transformed into a new set of composite variables or principal components that are not correlated to each other. The reduced dataset thus has 6 factors of entrepreneurial orientation that account for the variance in the data as a whole, each factor being a linear combination of the original variables. With the final rotated correlation matrix (convergence in 8 iterations), the components are grouped into the following six factors as shown in table 2 below.

Autonomy
Innovativeness
Risk taking propensity
Pro-activeness
Competitive aggressiveness
Societal responsibility

IMPLICATIONS

The following conclusions are validated from the table.

Risk taking propensity

The variable *work breakdown* means breaking down large chunks of work into small units, increases risk taking propensity of the firm. Firms take more risk with smaller work units and this contributes to the innovative behaviour in firms.

Autonomy

The factor of *Autonomy* is loaded by – *planning flexibility* present at all levels in the organization; *greater communication* network in the organization; *easy decision making* which is present; *incentive schemes* that are available to motivate creativity; and decision making vested with *senior managers* who are responsible for important decisions made.

Pro-activeness

Pro-activeness as a determinant of entrepreneurial behaviour is influenced by – *awareness of happenings* in other departments; *accepting healthy criticism and constructive feedback*; ability to do most tasks *on their own*; free access to *information of plans, targets, and achievements* by one another in the firm; and *opportunity* for all employees to give his/her best at work.

Innovativeness

Tolerance to views of others; *faster response* to challenges and changes at work place; *team spirit*; more *"thinking time"*; *supporting others* in times of need; use of *skills and experience* to make effective decisions are the components of the factor *innovativeness*.

Competitive Aggressiveness

With authority to react to situations *without referring back*; formation of *interdepartmental* teams to process new ideas; dramatic introduction of *new products*, fast *changes* in products or services; responding to actions which competitors *initiate;* and firms that are the *first to market* new products or services, administrative techniques, and operating technologies, *competitive aggressiveness* is achieved in firms with entrepreneurial behaviour.

Societal Responsibility

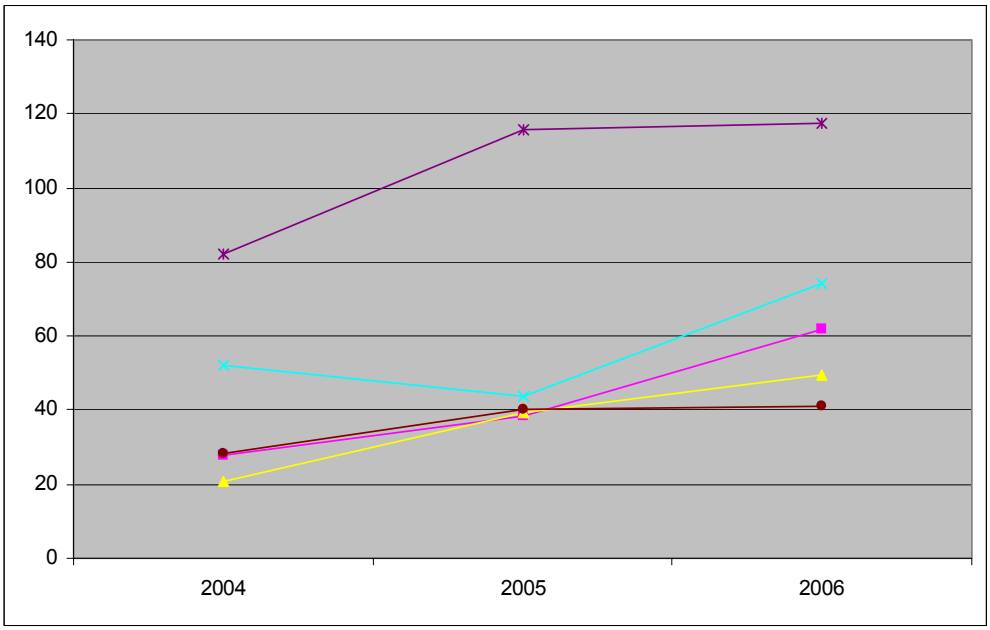
The sixth factor of entrepreneurial behaviour in firms is a function of the *societal responsibility* that is dominant in the firm. *Socially responsible* employees tend to be less entrepreneurial. Adherence to *corporate governance and ethical values* again makes employees "less" entrepreneurial. And finally, *environment consciousness* makes employees cautious in their entrepreneurial behaviour.

Table 2: Factor Correlation Matrix

Component	Autonomy	Innovativeness	Risk- taking	Pro-activeness	Competitive Aggressiveness	Societal Responsibility
WK_BDOWN			0.772			
PLAN_FLEX	0.48					
COMM	0.76					
EASY_DEC	0.49					
INC_PLANS	0.822					
MGRS_DEC	0.803					
AWARE_HAP				0.448		
AC_CR_FBCK				0.364		
WK_OWN				0.93		
INF_OTHERS				0.65		
OPP_TO_EXCEL				0.541		
RESP_VIEWS		0.762				
RESP_FAST		0.693				
TM_SPIRIT		0.704				
THINK_TIME		0.521				
TEAM_SPIRIT		0.704				
THINK_TIME		0.521				
SUPP_OTHERS		0.654				
USE_SKILLS		0.54				
N0_REF_BACK					0.488	
INT_DEM_TEAM					0.577	
NEW_PROD					0.7	
CHG_FAST					0.768	
FOLL_COMP					0.604	
FIRST_MKT					0.505	
ENV_CONS						0.423
CORP_GOV						0.538
SOC_RESP						0.71

Firm Performance

Data on the financial performance of selected firms obtained from the CMIE database for the past 3 years is shown in the figure below.



Given the trend in the financial performance as seen from the graph, it is inferred that firms with entrepreneurial behaviour will show an improved financial performance.

CONCLUSIONS

This study looks at the determinants of entrepreneurial behaviour in Indian firms. It identifies six factors that indicate entrepreneurial orientation

> *autonomy, risk taking propensity, competitive aggressiveness, proactive behaviour, innovativeness, and societal concerns.*

Based on these factors, a conceptual model for entrepreneurial behaviour is proposed. It is found that the financial performance of these Indian firms shows an increasing trend. It is therefore concluded that entrepreneurial orientation in a firm is critical for enhanced dynamic capabilities of the employees, better motivation to achievement and improved financial performance.

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GENDER DIFFERENCES IN ENTREPRENEURIAL TRAITS, PERCEPTIONS AND USAGE OF INFORMATION AND COMMUNICATION TECHNOLOGIES

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ABSTRACT

In this research, attempt was made to unveil gender differences in information and communication technology (ICT) usage, perceived system attributes, and entrepreneurial traits among Malaysia entrepreneurs. Results show that male entrepreneurs are more flexible and persevering as compared to female entrepreneurs. Risk-taking propensity is an important technology usage determinant among female entrepreneurs but not among male entrepreneurs. Innovativeness is associated with usage by male and female entrepreneurs. Mean perceptions of system's usefulness and ease of use are significantly higher for female entrepreneurs than for male entrepreneurs. There is a strong impact of perceived usefulness on system usage by male and female entrepreneurs. There is no significant association between perceived ease of use and usage. Overall ICT usage, usage of basic and advanced systems, and systems usage for administrative, planning, and control purposes do not differ based on gender.

KEY WORDS: Entrepreneur, Information and Communication Technology, Perceived Usefulness, Perceived Ease of Use, Gender Differences

INTRODUCTION

The benefits of deploying information and communication technology (ICT) in business cannot be over stated. There is a growing understanding of how businesses should operate using ICT to achieve optimal effectiveness. Information technology in general has become the major facilitators of business activities in the world today (Tapscott & Caston, 1993; Mankin, 1996) hence, business organization investments in ICT have increased significantly in the past two decades. Albeit, advances in technology continue at a fast pace, the use of emerging information and communication technologies has not been commensurate (Ndubisi & Richardson, 2002) or has fallen below expectations (Johansen & Swigart, 1996; Wiener, 1993; Moore, 1991). Landauer (1995) and Sichel (1997) had argued that low usage of systems is a plausible explanation for the 'productivity

paradox'. As such, an understanding of the salient factors that determine ICT usage among male and female entrepreneurs is important for researchers, system designers, and vendors.

The aim of this research is to increase understanding of the fundamental issues of technology adoption decisions by focusing on differences in the decision making process of men and women entrepreneurs in Malaysia. The increasing number of women-owned enterprises (Ndubisi et al., 2001), and the extensive role of technology in business (Gill, 1996) and enterprise performance, create important impetuses for this study. The outcome of this study will inform strategies for increasing technology up-take and greater usage of existing technologies as well as assist in change management in male and female entrepreneurship businesses. The study will also add to the existing body of knowledge in this area by unveiling differences in traits, perceptions and usage of ICT among male and female entrepreneurs.

ICT USAGE

This section discusses the theory underlying the key constructs in the study's model. The technology acceptance model (TAM) (Davis, 1989) was adapted in this study to examine the differences in perceived usefulness, perceived ease of use, and ICT usage between male and female entrepreneurs in Malaysia. TAM was adapted from the Theory of Reasoned Action (Fishbein & Ajzen, 1975; Ajzen & Fishbein, 1980) to understand the causal chain linking external variables to technology usage intention and actual use in a workplace. Among the different theoretical models, the Technology Acceptance Model (TAM) is chosen for this study as it helps to further the understanding of technology acceptance and usage behavior, users' perceptions of the system's usefulness and ease of use, as well as their associations with entrepreneurial traits. Moreover, the TAM provides valid instrument which has been extensively used to investigate a range of issues in the area of user acceptance and usage of technologies (Moore & Benbasat 1991; Sjazna, 1994; Ndubisi et al., 2001).

TAM defines relationships among perceived usefulness (U), perceived ease of use (EOU), behavioral intention (BI), and behavior (B). Specifically, that certain external variables influence behavioural intention to use, and actual usage, indirectly through their influence on perceived usefulness and perceived ease of use. Davis (1989), defines perceived usefulness as "the degree to which a person believes that using a particular system would enhance his or her productivity", and perceived ease of use as "the degree to which a person believes that using a particular system would be free of effort". Ndubisi and Richardson (2002) adapting the TAM examined the influence of entrepreneurs' traits on technology usage, indirectly through their influence on perceived usefulness and perceived ease of use. Entrepreneurial traits that were found to determine usage were innovativeness, risk-taking propensity, perseverance, and flexibility.

ENTREPRENEURIAL TRAITS

Some of the traits suggested by previous research that describe entrepreneurs are reviewed below. Hornaday and Aboud (1971) reported the following traits among entrepreneurs: high need for independence and effective leadership, internal locus of control, and high need for achievement. McGaffey and Christy (1975) found a high information processing capability. Decarlo and Lyons (1979) found that entrepreneurs have a high need for achievement, high need for independence and effective leadership, high need for autonomy, low conformity, and exhibit aggression, support, and benevolence. Miller (1983) reported that internal locus of control is a dominant entrepreneur trait. Other traits are: high need for autonomy; low conformity; high energy level, risk-taking, and change (Sexton & Bowman, 1983); dominance, endurance, innovation, self-esteem, low anxiety level, and cognitive structure (Sexton & Bowman, 1983); and low interpersonal effect, social adroitness, low harm avoidance, and low succorance (Sexton & Bowman, 1983).

Yonekura (1984) in the discussion paper on "Entrepreneurship and Innovative Behaviour of Kawasaki Steel" suggested the following traits: assertiveness, insistence, forward-looking, critical thinking, creativity, innovation, continuity, preparedness, responsibility, open-mindedness, and others. McBer & Co. (1986) unveiled that entrepreneurs have preference for intermediate level risks. Burch (1986) mentioned nine salient traits, which dictated a high propensity for one to behave entrepreneurially: a desire to achieve, hard work, nurturing quality, able to accept responsibilities, reward oriented, optimistic, excellence-oriented, an organiser, and money oriented. Wells (1994) found the following traits: they are proactive, they are motivated by a need for high achievement, and they demonstrate commitment. Ndubisi and Richardson (2002) summarized the list into four major traits: innovativeness, risk-taking propensity, perseverance or persistence, and flexibility and found associations between them and usage via perceived usefulness or ease of use. Since entrepreneurial traits are important determinants of ICT usage via perceived usefulness and ease of use, it is important to understand the mean differences in these explanatory variables as well as their explanatory power on usage based on sex typing. This is because sex typing may help identify attributes and behaviours salient to women and men respectively (Bem & Allen, 1974) that will benefit market segmentation efforts as well as gender-based technology market niches.

GENDER

Gender in this study refers to "biological sex" which differs from another view of gender by Bem (1981) as a psychological construct. There is a number of evidence of gender differences in decision-making processes of individuals. For instance, there are research evidence supporting decision processing differences between man and women in financial decision making (Powell & Ansic, 1997), hospital problem solving (Steffen & Nystrom, 1988), retirement decisions (Talaga & Beehr, 1995), preference for work schedule (where the employee has preschool children)

(Kantrowitz et al., 1989; Shellenbarger, 1991), absenteeism (Leigh, 1995; Scott & McClellan, 1990), college course and major selection (Wilson et al., 1994; Gianakos & Subich, 1988), what is perceived or processed as being "ethical" (Franke et al., 1997; Dawson, 1995; Galbraith & Stephenson, 1993), attributes important in determining self-esteem (Tashakkori, 1993), emotional expression (Deaux, 1985; Kring & Gordon, 1998), leadership style (Eagly & Johnson, 1990; Helgesen, 1990; Rosener, 1990), and communication or conversational style (Tannen, 1995).

Research on gender differences has suggested that for men, job/work activity is typically their most important role (Barnett & Marshall, 1991), while working mothers prefer part-time work, flexible work schedules, and telecommuting in order to accommodate their family responsibilities (Shellenbarger, 1991; Kantrowitz et al., 1989). O'Niel (1982) suggested that men are greatly preoccupied with work, accomplishments, and eminence. Similarly, Hoffman (1972) reported that men, more than women are motivated by achievement needs, while Hennig and Jardim (1977) stated that men adopt strategies focused on bottom-line results versus methods used to achieve those results. Hence, men tend to be more directed toward impersonal and individualistic tasks and goals, compared to women (Gill et al., 1987). Other reports, for example, Rosenkrantz et al. (1968) suggested that "objective" and "logical" are more male-valued traits, Minton and Schneider (1980) is convinced that men may be more task-oriented than women, a finding consistent with Sargent (1981), which reported that men have been socialized to value having an impact and therefore, tend to engage in task-oriented or instrumental behaviour.

In relation to technology usage, Bozionelos (1996), Morrow et al., (1986) suggested that women display somewhat higher levels of computer anxiety; and lower computer aptitude (Felter, 1985) compared to men (Chen, 1985). Both computer anxiety and computer aptitude have been related to perceptions of effort (Venkatesh et al., 2000), thus suggesting that constraints or ease of technology use (perceived difficulty or perceived ease of use) will be more salient to women compared to men. Women tend to focus on the methods used to accomplish a task – suggesting a greater process orientation (Hennig & Jardim, 1977; Rotter & Portugal, 1969). Given the outcome orientation (instrumentality) of men and process orientation of women, it is expected 'ceteris peribus' that usefulness will be a stronger determinant of ICT usage among male while ease of use will be stronger determinant among female. This speculation is worth probing in the light of previous findings (such as, Decarlo & Lyons, 1979; Hornaday & Aboud, 1971; among many others) that both male and female entrepreneurs have high need for achievement.

METHOD

Participants and Procedure

A total of 295 questionnaires were sent out and 177 usable responses were received, which translates to 60% response rate. Respondents were drawn from members of the Entrepreneur

Development Unit of the Malaysian Prime Minister's Department or members of the National Association of Women Entrepreneurs in Malaysia. It was ensured that entrepreneurs who belonged to the two associations were not double-counted. The primary business activities of the respondents' organizations range from manufacturing, to sales, education, designing, construction, etc.

Entrepreneurs were surveyed using structured questionnaire made up of four parts. Part 1 measures the actual system usage with three indicators (such as use of a wide variety of software packages in CBIS environment; the number of business task performed using systems; and frequency of system usage) taken from ICOLC (1998). ICT usage was measured in terms of current usage or actual usage behaviour of entrepreneurs unlike most previous research (e.g. Davis et al., 1989), which have measured usage based on intention. Straub et al. (1995) had questioned intention as a predictor of actual behaviour. Bentler and Speckar (1979), and Songer-Nocks (1976) earlier disagreed with Fishbein and Ajzen's (1975) assertion that attitudes and norms can influence behaviour only indirectly through behavioural intention. Venkatesh (2000) called for future research using actual usage instead of usage intention to test the TAM, hence based on Szajna (1994) actual usage was used in the present study.

Parts 2 and 3 respectively measure perceived usefulness and perceived ease of use with items taken from Davis et al. (1989) and Ndubisi et al. (2001). Measures of perceived usefulness in this study are perceptions that using IT will increase productivity, improve job performance, enhance job effectiveness, and be useful in the job; and perceived ease of use is measured in terms of how clear and understandable is the interaction with system, ease of getting the system to do what is required, mental effort required to interact with the system, and ease of use of the system. Part 4 measures the traits of entrepreneurs (such as innovativeness risk-taking propensity, perseverance, and flexibility) using items adapted from Harper (1996) and Kitchel (1997). Test of Differences were applied and the results presented and discussed in the ensuing section.

RESULTS

Table 1 shows the varieties of systems investigated, the specific job tasks where systems are applied, as well as the usage rate by entrepreneurs.

Table 1: ICT Usage

System Variety	Usage (%)	Specific Job Tasks	Usage (%)
Word processing	91.5	Letters and memos	85.9
Electronic mail	78.0	Producing report	75.1
Spreadsheets	55.9	Communication with others	73.4
Application packages	53.6	Data storage/retrieval	59.9

Table 1: ICT Usage			
System Variety	Usage (%)	Specific Job Tasks	Usage (%)
Graphics	44.6	Planning/Forecasting	46.3
Database	37.3	Budgeting	44.1
Programming languages	26.0	Controlling & guiding activities	38.4
Statistical analysis	25.4	Analyzing trends	34.5
		Making decisions	34.5
		Analyzing problems/alternatives	23.2

Differences in Traits, Perceived Usefulness and Ease of Use, and ICT Usage.

Table 2 shows the summarized results of the test of differences in mean traits, perceptions, and ICT usage by male and female entrepreneurs.

Table 2: Mean Differences in Traits, Perceptions and IT Usage					
	FEMALE			MALE	
	Mean	S/D	t-value	Mean	S/D
Traits					
Innovativeness	14.0811	3.8986	1.342	14.8085	2.9838
Risk-taking propensity	13.9324	3.2322	.139	13.8641	3.2299
Perseverance	15.1622	3.0879	2.406*	16.2233	2.6006
Flexibility	10.7568	2.9229	3.280**	12.0485	2.0213
Perceptions					
System's Usefulness	17.66	1.9604	3.633**	16.14	3.5811
System's Ease of Use	16.93	2.4289	5.861**	14.25	3.6507
Technology Usage					
Overall usage (OU)	-.1265	2.9727	.530	.0909	2.2410
OU components					
System Varieties (SV)	4.0676	2.0827	.324	4.1650	1.8948
Job Tasks (JT)	5.4324	3.2565	1.056	4.9515	2.5682
Usage Frequency	4.86	1.30	2.157*	5.26	1.08

Table 2: Mean Differences in Traits, Perceptions and IT Usage					
	FEMALE			MALE	
	Mean	S/D	t-value	Mean	S/D
SV components					
Basic Systems usage	2.9595	1.2761	.988	3.1553	1.3192
Advanced Systems	1.1081	1.1535	.626	1.0097	.8343
JT components					
For Admin purposes	2.9324	1.1626	.118	2.9515	.9840
For Planning purposes	1.5405	1.5632	1.199	1.2718	1.3299
For Control purposes	.9595	.8827	1.823	.7282	.7945
* $p < 0.05$ ** $p < 0.01$ OU = overall usage SV = system variety JT = job tasks					

Findings show that male entrepreneurs show significantly higher traits of perseverance (t-value = 2.406; p-value = .017) and flexibility (t-value = 3.280; p-value = .001) as compared to female entrepreneurs. As shown in Table 2, scores for the two constructs are much higher for male entrepreneurs than for females. There are no significant differences in the mean scores of innovativeness and risk-taking propensity.

With regards to perceived usefulness and ease of use, the study unveils significant differences based on gender. Mean perceived usefulness of ICT for female is 17.66 and for male is 16.14, while mean ease of use for female is 16.93 and for male is 14.25. Female entrepreneurs have stronger perceptions of the usefulness (t-value = 3.633; p-value = .000) and ease of use (t-value = 5.861; p-value = .000) of the systems compared to male entrepreneurs. Comparing this result with Hennig and Jardim, (1997) and Rotter and Portugal (1969), which suggested that women tend to focus on the methods used to accomplish a task while men focus on outcome, there is a mixed result. Women entrepreneurs focus on both outcome and process. Perception of usefulness and ease of use of technologies were more salient for female than for male entrepreneurs. As observed from the previous paragraph that female entrepreneurs are less flexible than the male ones, it is suspected that such relative inflexibility or rigidity could lead to better perceptions of existing systems. For male entrepreneurs who seem to be more flexible, frequent replacement of existing applications could affect how they appreciate existing system's characteristics, such as ease of use and usefulness.

There is no significant difference in overall usage of ICT (t-value = .530; p-value = .597) between male and female entrepreneurs. To investigate usage differences further, usage components (e.g. varieties of systems used and various job tasks where systems are applied) were regrouped. Varieties of systems were combined into two groups as follows: Basic systems (which include, word processing, electronic mail, spreadsheets, graphics, and database), and advanced systems (e.g. application packages, and programming languages). Specific job tasks were also grouped into those

for administrative purposes (e.g. producing reports, letters and memos, data storage/retrieval, & communication with others), planning purposes (e.g. analyzing trends, planning/forecasting, analyzing problems/alternatives, & making decisions), and control purposes (e.g. budgeting, controlling & guiding activities). The result still points to non-significant difference in usage based on gender. Specifically, there is no difference in usage of basic systems (t-value = .988; p-value = .325) or advanced systems (t-value = -.626; p-value = .533) based on gender. Also no differences were found in the usage of systems for administrative tasks (t-value = .118; p-value = .907), for planning purposes (t-value = -1.199; p-value = .232), or for control purposes (t-value = -1.823; p-value = .070) between male and female entrepreneurs.

ICT Usage Determinants: Male and Female Entrepreneurs Comparison

Table 3 compares the explanatory power of traits, perceived usefulness and ease of use on ICT usage between male and female entrepreneurs.

Table 3: Summarized Regression Results of the Impact of Traits and Perceptions on ICT Usage

Variables	Male	Female
	Standardized Beta	Standardized Beta
Traits		
Innovativeness	.465***	.774***
Risk-taking propensity	.129	.347**
Perseverance	.075	.067
Flexibility	.005	.354
R^2	0.20	0.63
Perception		
Perceived Usefulness	.430***	.525***
Perceived Ease of Use	.173	.229
R^2	0.32	0.18

* $p < 0.01$ ** $p < 0.001$ Dependent Variable = Usage

The results shown in Table 3 indicate that variations in ICT usage explained by entrepreneurs' traits (such as innovativeness, risk propensity, perseverance, and flexibility) 63 percent and 20 percent respectively for female and male entrepreneurs. This implies that traits are much more salient in explaining technology usage among women entrepreneurs than they are among their male counterparts. Although innovativeness is a robust determinant of usage among both male

and female entrepreneurs, the strength of the coefficients is greater for female entrepreneurs than for males. Risk-taking propensity is an important determinant among female entrepreneurs but not among male entrepreneurs. Because females generally have higher risk-aversion than males, it is logical that the amount of risk the entrepreneur is comfortable with tends to affect technology usage by females than males. Perseverance and flexibility show no significant impact on usage of ICT in both categories of entrepreneurs.

Perceptions show a different result in that the variation in usage explained by perceived usefulness and perceived ease of use is greater among male entrepreneurs (32%) as compared to female entrepreneurs (18%). The results clearly demonstrate the strong impact of perceived usefulness on system usage by male and female entrepreneurs as well as a dearth of significant influence of perceived ease of use on usage. In sum, the findings are that the variations in ICT usage accounted for by entrepreneurial traits and usefulness and ease of use perceptions differ among male and female entrepreneurs. Moreover, although the direction of the beta coefficients for all trait elements and perception elements are the same for male and female entrepreneurs, the strength of the coefficients differs.

POTENTIAL CONFOUNDING FACTORS

There are some important demographic variables that could potentially confound observed gender differences. Three potential confound associated with gender include income, occupation, and education (Venkatesh et al., 2000). It is widely believed that men are often more educated than women, and are thus found at the higher levels in the organizational hierarchy, with higher income. Thus it is deemed important to first evaluate (and control, if necessary) the effects of income level, occupation level, and education level (Kite, 1996; Praeger, 1986). In the current research, the issue of the confounding of occupation is not critical as all respondents are owners (entrepreneurs) of their business (similar occupation). In addition, income and education do not confound the observed relationships. Moreover, no past research as shown that either education or income is significantly associated with entrepreneurial propensity.

IMPLICATIONS AND CONCLUSIONS

Does gender matter when examining information and communication technology usage by entrepreneurs? This research suggests that although there are no differences in overall usage based on gender, usage frequency, usage determinants (such as perceived usefulness and perceived ease of use), and traits (such as perseverance and flexibility) do show differences based on gender. Male entrepreneurs recorded higher usage frequency than females. The difference in usage rate between males and females may have to do with the needs of each, propensity to experiment with the different features and functions of the system (males are known to be more adventurous with

technologies), amount of time spent at work (females due to family and work related activities that compete for their time, tend to work overtime less frequently compared to males). Part of the longer working hours could be spent interacting with systems. The differences in mean scores for perseverance and flexibility favor male entrepreneurs. Systems' perceived usefulness and ease of use are higher for female entrepreneurs. The t-test results show that personal traits of perseverance and flexibility are higher for male entrepreneurs, while perceptions of systems' usefulness and ease of use are higher for females.

Traits explain technology usage by women entrepreneurs better than it explains usage by males – 60 percent and 20 percent respectively. The results further indicate that innovativeness is a robust determinant of usage among both male and female entrepreneurs, although the strength of the association is greater for females than for males. Thus, 1 unit change in innovativeness will produce higher rate of usage by females compared to males. Risk-taking propensity is an important determinant among female entrepreneurs but not among male entrepreneurs. For females, a unit increase in risk-taking propensity will result in significant increase in usage rate, but not so with males. Perseverance and flexibility show no significant impact on usage of ICT in both categories of entrepreneurs.

Perceptions are other important determinants of technology usage by male and female entrepreneurs in Malaysia besides traits. There is a strong impact of perceived usefulness on system usage by male and female entrepreneurs as well as non- significant influence of perceived ease of use on usage. Based on the beta estimates, perceived usefulness is a stronger influence on usage among females than it is among males. This indicates that per unit increase in usefulness perception by females culminates to a greater increase in usage compared to their male counterparts. Thus, both males and females are outcome oriented in their adoption of information and communication technologies. Instrumentality is deemed an important driver for both, albeit more so for female entrepreneurs (based on the size of the beta estimates). Perceived ease of use is not a significant driver of usage for both males and females. Thus, entrepreneurs are not process oriented in their technology adoption. This may be because of their high need for achievement, which might compel them to continue to adopt systems that are deemed useful in achieving their goals, even though there may be slight difficulty in use.

These findings are important for technology management in small firms as well as in designing strategies that would enhance technology uptakes and usage of existing technologies by systems designers and vendors. For example, since more and more women are setting up entrepreneurial ventures in this male dominated sector, designers and vendors of new technologies must understand the factors that are salient to each group of entrepreneurs that are likely to lead to acceptance and greater usage. This information will help in formulating sound marketing strategies. For example, since risk-taking propensity is an important driver for women entrepreneurs, systems designers should ensure that uncertainty is minimized. One way to do this is to provide comprehensive, user friendly manuals that users can rely on in figuring out any usage difficulty.

Moreover, reducing user anxiety and enhancing self efficacy and perceived behavioural control can help to reduce perceived risk and uncertainty. Vendors can achieve such reduction through training and other confidence building coaching techniques.

Theoretically, the research offers a better understanding of the relevant drivers of information and communication technologies among entrepreneurs in Malaysia. While certain traits offer good explanations for technology usage by both male and female entrepreneurs (e.g. innovativeness), others (e.g. risk-taking propensity) offer explanation for usage by females only. Yet, other traits (namely perseverance and flexibility) have no significant association with usage by males and females. With respect to perceptions, both male and female entrepreneurs have shown that usefulness is an important predictor of usage while ease of use is not. Perceived usefulness is an important driver of technology usage by both male and female entrepreneurs contrary to the general belief that outcome orientation is more of men's technology usage determinant than it is for women. Perceived ease of use has no significant influence on technology usage by entrepreneurs contrary to the postulation of the technology acceptance model. Future research may attempt to validate these findings among entrepreneurs in develop nations, as well as examine the moderation effect of culture in these relationships.

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A HERMENEUTICAL APPROACH TO UNDERSTANDING ENTREPRENEURIAL FAILURE

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ABSTRACT

This paper reports an investigation of entrepreneurial failure using hermeneutic analysis of five entrepreneurship narratives. The data used in this study was collected between 2002 and 2005. The research focuses on entrepreneurial orientation and defines entrepreneurs as individuals who can "see what is not there." The researchers adopted "a deviation from the entrepreneurs' desired expectations" as their working definition of entrepreneurial failure. The paper progresses through four levels of interpretation in the development of theoretical understanding of personal and organizational learning from failure.

The researchers found that individuals and organizations can learn from failure and thus improve chances of ultimate success. However, sometimes individuals and organizations do not learn from entrepreneurial failure and other times there are no lessons to be learned from entrepreneurial failure. The authors created a model of entrepreneurial failure based on an ecological perspective.

The study adds to the growing body of research into entrepreneurial failure. It introduces researchers to the importance of seeing entrepreneurial failure within the context of endogenous and exogenous forces. The study provides a mechanism for practitioners to determine whether or not there is learning available from particular instances of entrepreneurial failure.

INTRODUCTION

Entrepreneurship literature has tended to view failure negatively and focus on failure avoidance (Aley, 1993; Buccino & McKinley, 1997; Gatewood et al., 1995; McGrath, 1999; Shepherd et al., 2000; Simon et al., 2000; Sitkin, 1992). However, scholars such as McGrath (1999) have proposed that the focus of academic inquiry should be redirected from a preoccupation with achieving success and avoiding failure to a more integrated view of how success and failure are related.

Previous studies have used quantitative investigation in an attempt to shed light on the failure rate of new ventures (Aley, 1993; Bates, 1995; Blunden, 1987; Duncan, 1994; Headd, 2003; Lussier & Pfeifer, 2000; Watson & Everett, 1996) and have looked into the characteristics of failed ventures (Bates, 1995; Buccino & McKinley, 1997; Gatewood et al., 1995; Gimeno et al., 1997). These

quantitative studies have generally been unsuccessful in building a consensus of how many firms fail and why new ventures fail. Bygrave (1989) has criticized entrepreneurship researchers for being guilty of "physics envy", which he defines as the inappropriate imitation of the theoretical and empirical methods of advanced rational scientific paradigms. Wortman (1986) noted the primary methodologies of US entrepreneurship research are mail questionnaires and directed interviews. These methodologies may not be best suited to entrepreneurship research, since entrepreneurship consists of idiosyncratic phenomena connected by non-linear relationships often with reciprocal causality (Stevenson & Harmeling, 1990). Low and MacMillan (1988) indicated the need for more contextual and process oriented research in the field of entrepreneurship. Boje (1991) has described storytelling in organizations as "…the preferred sense-making currency of human relationships." Research that seeks to interpret stories allows phenomena to be viewed through the subject's eyes (emic point of view), rather than from the more limited viewpoint of an outsider (etic point of view) (Hansen & Kahnweiler, 1993). The research reported in this paper utilizes qualitative investigation, particularly the analysis of the stories that entrepreneurs tell about their failures, to come to an understanding of entrepreneurial failure.

The authors of this paper use a hermeneutical approach to come to an understanding of the nature of entrepreneurial failure and the impact that failure has on the entrepreneurs connected with the new venture. Hermeneutics is a post-modern approach to understanding which develops depth of meaning through iterative attempts to interpret text or other objects. In this case, the objects being interpreted are interviews with self-identified entrepreneurs.

The paper proceeds as follows: The first level of interpretation is the development of a theoretical understanding of personal and organizational learning from failure through review of the academic literature. The second level of interpretation is the development of a model based on evidence collected in an interview with Dr. Anji Reddy. The third level of interpretation is the application of this model to four interviews with self-identified entrepreneurs: Ron Morgan, Dan Newell, Tim Vasko and Cathy Walker. This interpretation causes the authors to reflect on the model developed earlier and to make adjustments to include the new understanding from these interviews. The fourth level of interpretation is a discussion of the usefulness of this model and its contribution to academic literature.

LITERATURE REVIEW

Before investigating the ways in which entrepreneurs make sense of failure, it is necessary to clarify the dimensions of entrepreneurship that are under study. The early focus of the entrepreneurship literature revolved around three broad themes: (1) what happens when entrepreneurs act, (2) why they act, and (3) how they act (Stevenson & Jarillo, 1990). Miller's (1983) work was pioneering in that it shifted the earlier focus from the critical actor to the process of entrepreneurship. He concluded that engaging in product market innovations, undertaking

somewhat risky ventures and being innovative were critical to entrepreneurship. Building on this work, Lumpkin and Dess (1996) distinguished between entrepreneurship and entrepreneurial orientation. They defined entrepreneurship as new entry which could be accompanied by entering new or established markets with new products or services. Entrepreneurial orientation, on the other hand, helped in characterizing and distinguishing the key entrepreneurial process (i.e. it described how new entry is undertaken). Entrepreneurial orientation has been viewed in the entrepreneurship literature as a multidimensional construct. There is a general consensus among researchers that the dimensions of innovation, pro-activeness, risk taking, competitive aggression and autonomy effectively define the entrepreneurial orientation (Lumpkin & Dess, 1996, 2001; Covin & Slevin, 1989). Embedded in the concept of entrepreneurial orientation is the ability of the entrepreneur to envision enterprise which does not yet exist. Carland, Carland and Stewart (1996) describe this ability as intuition and claim that entrepreneurs with strong intuition are able to translate vision into innovative action. This paper uses the lens of entrepreneurial orientation in its search for understanding of entrepreneurial failure.

Mirvis and Berg (1977) presented what many scholars accept as society's approach to failure when they observed, "In our culture failure is anathema. We rarely hear about it, we never dwell on it and most of us do our best never to admit it." Cannon and Edmondson (2005) have suggested that people have an instinctive propensity to deny, distort, ignore or disassociate ourselves from their own failures; a tendency that appears to have deep psychological roots. This has resulted in a tendency of most researchers to view failure negatively and instead shift the focus of their study to failure avoidance. While it is obvious that not all entrepreneurial efforts will be successful, Timmons (1989) observed: "Businesses fail but entrepreneurs do not. Failure is often the fire that tempers the steel of an entrepreneurs learning. In order to succeed one has to first experience failure."

Pioneering work in the field of learning through failure was undertaken by Sitkin (1992). He argued that failure is an essential prerequisite for effective organizational learning and adaptation and proposed a "strategy of small losses" wherein the incidence of small failures could prove beneficial to organizations as it could improve their resilience. McGrath (1999) proposed a redirection in the theoretical focus from a preoccupation with achieving success and avoiding failure to a more integrated view of how the two phenomena are related. Her work focused on the failure of projects within a firm and used real option reasoning to conclude that by seeking success and avoiding failure firms not only introduce errors that inhibit learning and interpretation processes but also make failure more likely or expensive than necessary.

These studies raise the question of whether entrepreneurial failure is unequivocally bad or is it possible that failure may actually help entrepreneurs learn and improve their chances of ultimate success. Cyert and March (1963) proposed the notion that individuals in organizations learn and that this learning occurs mainly from encountering problems rather than by experiencing success. Researchers from the transformation perspective have observed that ignoring failure can limit our

understanding of the theory and understanding of organizational change (Thorne, 2000). Failure is a fact of life from which most individuals cannot escape. When investigated under the lens of entrepreneurship research, the study of failure offers an opportunity for researchers to try and gain an understanding of what failure means to entrepreneurs, how entrepreneurs deal with failure and perhaps derive models of what causes entrepreneurial failure.

While some scholars have recognized the benefits of learning from failure (Sitkin, 1992; Nonanka & Takeuchi, 1995); others have used the psychology literature on grief and emotions to explain how entrepreneurs cope with failure (Shepherd, 2003). Although Sheppard (2003) proposed that failure could be an important source of learning for entrepreneurs, he also associated failure with bankruptcy and concluded that the loss of a business from failure could interfere with the ability to learn from the events surrounding that loss. Cannon and Edmondson (2005) observed that learning from failure is more common in exhortation than in practice and our understanding of the conditions under which it occurs is limited. Other scholars have commented that evidence and actual outcomes of failure is sparse (Bruderi, Preisendorfer & Ziegler, 1992; Cannon & Edmondson, 2005).

The popular press seems to have developed a more holistic view of the nature of entrepreneurial failure. Peters and Waterman (1982) suggested that one of the keys to achieving and sustaining high performance is a willingness to take risks and the ability to admit to failure and learn from it. Peters and Waterman (1987: 259) quoted Soichoro Honda, founder of Honda Motors, saying: "To me success can only be achieved through repeated failure and introspection. In fact, success represents the one percent of your work, which results only from the 99 percent that is called failure." Similarly, Inc Magazine (1989) reported the example of the CEO of a company treating failure as an opportunity to ensure that others in the organization did not make the same mistake: "The CEO pulled a $450 mistake out of the company's dumpster, mounted it on a plaque and named it the no-nuts award. This was followed by a presentation ceremony to highlight the error." There is popular press folklore about Tom Watson Jr of IBM who summoned a young executive responsible for a bad decision that had cost the company several million dollars. Fully expecting to be dismissed the executive said: "I suppose after the set of mistakes you will be wanting to fire me." Watson is said to have replied: "Not at all young man, we have just spent a couple of million dollars educating you."

The definition of failure is a crucial starting point for this paper. The popular press view of failure is that it occurs when the business becomes insolvent and ceases operations, resulting in the venture's assets being liquidated to pay creditors and the entrepreneur often facing personal bankruptcy. Entrepreneurship researches have generally used more specific criterion to define failure. The bankruptcy criterion for failure states that failure occurs when the firm is legally bankrupt and ceases operations with a resulting loss to creditors (Perry, 2001). The discontinuance of ownership criterion for failure implies a change in ownership and management or closure of the business (Baum & Mezias, 1992; Mitchell, 1994). The earning criterion for failure states that a

venture is deemed to be a failure if the venture is not earning a rate of return on invested capital that is significantly more than prevailing rates on similar investments (Altman, 1968; Cochran, 1981). The loss-cutting criterion for failure defines a failed firm as one that is disposed of at a loss to avoid further losses (Ulmer & Nelson, 1947).

The authors of this paper have adopted a much wider view by defining failure as simply a deviation from the entrepreneurs' desired expectations. Although bankruptcy and personal trauma did occur in some of the cases investigated; this extreme view of failure often does not permit investigation of the nature of entrepreneurial failure since entrepreneurs often display reluctance to discuss these events and may even choose to move into an entirely different career as a result of their failure. The broad conceptualization of failure adopted in this paper enables a starting point for understanding how entrepreneurs confront and make sense of their failure.

Closely interwoven with the definition of failure used in this study is understanding the vision of the entrepreneur. Vision is an imagined future for an organization or mental image having organizationally shared values that leaders articulate to inspire performance, direct action or create organizational change (Bennis & Nanus; House, 1977; House & Shamir, 1993; Kanter, 1997). Some researchers have suggested that vision remains a hypothetical construct (Stone, 1978) and has not been defined in a generally agreed manner (Larwood, Falbe, Kriger & Miesing, 1995). Carland, Carland and Stewart (1996) observed that the principle characteristic of an entrepreneur is the ability to "see what is not there". They suggested that it is vision which guides the act of volition and that this entrepreneurial vision extends to untapped market opportunities and new approaches to competition.

Researchers have long recognized that entrepreneurial vision does not just confine the entrepreneur to improving the set of possibilities but enables the enactment of new possibilities and often even new realities (Bird & Bush, 2003). Vision is the initial condition for entrepreneurship. Even before entrepreneurs attempt to create a new venture and organize the resources required to enter a new market to take advantages of opportunities they have a vision of an imagined future. This is a transcendental ideal or a mental image which intuitively provides a critical long term view (Bhide, 2000) which is analogous to a road map of the future.

This study proposes that the identification of a strong entrepreneurial vision is central to understanding how an entrepreneur comes to make sense of his or her entrepreneurial failure. Entrepreneurial vision is central to the ability of the entrepreneur to learn from failure. When confronted with failure it is the entrepreneur's vision that reinforces the entrepreneur's commitment to a successful outcome. The initial entrepreneurial vision helps the entrepreneur to devise an initial strategy which he or she hopes will lead to a favorable outcome. This linkage between the initial condition and the original strategy is critical because, when confronted with failure, the entrepreneur, firm in his vision of "seeing what is not there" (Carland et al., 1996), revises his or her strategy in hopes of a more favorable outcome. The authors propose that this mechanism is similar to Mintzberg's (1987) concept of deliberate and emergent strategies. This view has

supported in the literature by Isenberg's (1987) definition of "strategic opportunism" as the ability to remain focused on long term objectives while staying flexible enough to solve day to day problems and recognizing new opportunities.

In summary, this paper reports an investigation of entrepreneurship through the broad lens of entrepreneurial orientation. Past research suggests that, for entrepreneurially-oriented individuals or organizations, failure is not unequivocally bad. Rather, these individuals and organizations learn from their failure and thus improve on their chances of ultimate success. The lens of entrepreneurial orientation suggests that a holistic view be taken when looking at entrepreneurial failure. Thus, the definition of entrepreneurial failure use in this study is: "a deviation from the entrepreneurs' desired expectations." Embedded in this definition is the concept that a strong entrepreneurial vision is central to the determination of how an entrepreneur will make sense of his or her entrepreneurial failure.

METHODOLOGY

This paper develops understanding of the phenomenon of entrepreneurial failure through hermeneutic analysis of entrepreneurial narrative. Scholes (1981) defined narrative as "the symbolic presentation of a sequence of events connected by subject matter and related by time." Ricoeur (1984) defined narrative as "the discourse of a narrator recounting the discourse of the characters". Both definitions imply that narrative is an attempt by the narrator to create meaning of past actions. In his book, *Narratives of Enterprise: Crafting Entrepreneurial Self-identity in a Small Firm*, Down (2006) linked narrative to the milieu of the small firm thus, defining entrepreneurial narrative. Other researchers, such Hytti (2003), McKenzie (2002), Smith (2006) and Sud (2005) have utilized entrepreneurial narrative in their doctoral dissertations.

Hermeneutics is an interpretive method of deriving understanding from narrative. The methodology originated as a way of adapting classical legal or theological texts to contemporary situations (Gadamer, 1975) and was dubbed "hermeneutics" after the Greek word "hermêneuô", meaning to interpret or to translate. Dilthey, a member of the Frankfurt school of philosophy, sought an epistemological foundation for the objectification of humanistic inquiry (Thompson, 1981) and adopted the technique of hermeneutics (Rickman, 1976). Husserl (1958) attempted to explain the changing nature of the appearance of the objective world through the metaphor of the cycle of spheres of understanding and reason. Ricoeur has been credited with moving interpretation away from the purely semantic argument of hermeneutics towards a more general theory of understanding (Thompson, 1981). Ricoeur and Thompson (1981) expanded the hermeneutic cycle to include critical consciousness, explaining that critical consciousness is movement or dialectic between explanation and understanding. Explanation concerns the ability to represent meaning in text or discourse (Ricoeur & Thompson, 1981). Understanding concerns the grasp of the intention or meaning of a text or discourse and thus the appropriation of meaning (Rabinow & Sullivan, 1979).

Depth of understanding or the movement from naive interpretation to critical interpretation (Ricoeur & Thompson, 1981) provides a mechanism for understanding.

This paper utilizes four iterations of the hermeneutic cycle. The first iteration is the previously developed theoretical understanding of entrepreneurial failure through review of the academic literature. The second iteration of hermeneutic interpretation is the development of a model based on evidence collected in an interview with Dr. Anji Reddy, an entrepreneur who developed Dr. Reddy's Laboratories, Limited into a multi-million dollar pharmaceutical company. The third iteration of hermeneutic interpretation is the application of this model to four interviews of self-identified entrepreneurs: Ron Morgan, Dan Newell, Tim Vasko and Cathy Walker. This interpretation causes the authors to reflect on the model developed earlier and to make adjustments to reflect new understanding from these interviews. The fourth level of interpretation is a discussion of the usefulness of this model and its contribution to academic literature. There is implied, a fifth iteration of the hermeneutic cycle in the readers' interpretation of this paper.

DATA COLLECTION AND ANALYSIS

Overview

The data used in this study was collected between 2002 and 2005 as a by-product of other research. When the authors of this study compared interviews of self-identified entrepreneurs collected independently, they noticed that particular interviews revealed a similar propensity towards the discussion of entrepreneurial failure. This observation led the authors to attempt the detailed analysis contained in this paper.

The narratives of this study were recorded using current best practices (McKenzie 2005). Oral evidence is referred to as an "actuality" (Ridington, 2001). The actuality documents the lived-in experience of the data collection, and requires little, if any added detail to transmit the verisimilitude of the text. It is important to recognize that the actuality represents the discourse between its two authors: the interviewer and the person being interviewed and that the actuality is defined by a particular moment in time (Portelli, 1998). Whether or not the oral narrative documented in this study is factual is a moot point. What is important for this study is the "thick description" (Geertz, 1973) of the memoirist's understanding of their entrepreneurial experience: their contemporary consciousness (Lummis, 1987). In this light, the factors of lapsed time and modified perceptions increase the memoirist's understanding of the phenomenon he or she has participated in and thus add to the thickness of the description (Hoopes, 1979).

Interview of Dr. Anji Reddy

In-depth interviews of Dr. Reddy and his associates were conducted between 2004 and 2005 in Hyderabad, India. Dr. Reddy's Laboratories, Limited (DRL) was founded in 1984 and has developed into a venture with nearly a billion dollars in sales. DRL operates in two markets: the manufacturing and formulation of pharmaceuticals and the marketing and distribution of pharmaceuticals.

Reddy's vision of manufacturing bulk drugs experienced repeated failures. Despite this Reddy remained committed to his vision and recollected: "We went through hell, many sleepless nights implementing the process with batch after batch failing. But I said we will do it on our own by conceptualizing a new process. Once the process was stabilized, it was the purest product in the world." Reddy adopted a similar approach when entering the formulations market. Having written out the mission of his life: "to bring new molecules into the country at a price that the common man could afford", Reddy quickly realized that the high prices of his drugs created the necessity of achieving economies of scale in manufacturing. He achieved the creation of economies of scale by selling the bulk drug he manufactured to his competitors who in turn helped expand the market and quickly brought prices down.

Reddy's experience in formulations began when DRL entered the Brazil market. This market was similar to India, but Reddy was not able to find the right partner and so DRL was forced to exit the Brazilian market. In 1999, with the experience of his previous failure fresh in his mind, Reddy once again entered the Brazilian market but this time on his own. He recalled: "The lesson we learnt was that you cannot partner unless there is a value proposition coming from the partner." In his second foray into the Brazilian market, Reddy applied lessons from his successful entry into the Russian market.

Reddy stunned the pharmaceutical world with his success in developing new chemical entities when his molecule (DRF 2593) was licensed to Novo Nordisk of Denmark. This success was followed, a year later, when he licensed his second discovery, (DRF 2725). However, in 2002 Novo Nordisk announced that it had suspended Phase III clinical trials because their compound had led to tumors in rodents**.** Reddy recalled: "I got the call at around 12 o'clock and was miserable for the rest of the day. If it had been successful, from the third or fourth year onwards we would have seen revenues of $150 million every year for the next 15 years. That would have been enough for me take another compound all the way through Phase III trials! And thereafter one or two compounds every year! It was a tremendous setback."

Reddy recovered quickly from this setback and took pains to emphasize to his team the importance of being able to accept failure and learn from it. His head of research and development observed: "The next morning, Dr Reddy called a meeting of all the research scientists and addressed them. He told them they would need to take such reverses in their stride. He also confirmed them

that he remained strongly committed to his vision of discovery research. He asked them look at this setback as a challenge and highlighted the importance of building a strong pipeline."

In 2003, Novo Nordisk decided to discontinue trails on the compound which used the other of Reddy's molecules. Reddy, in his report to share holders, commented: "We have critically examined the company's research and development portfolio and are giving up work on a large number of molecules across sundry segments in favor of a more intense, focused approach towards developing the most scientifically promising best in class molecules in key therapeutic areas." In response to the changed revenue expectations, Reddy decided to cut back on research projects which, although promising, did not fit into their overall objectives. A therapeutic area focus committee, chaired by the chief scientific officer, was set up to reduce the number of projects. The committee decided that research in identified priority areas, which had a comparatively short turn around, would receive 70% all available funding. The head of research and development recalled: "So, post that failure, we decided to focus on some therapeutic areas and get into a more robust project management mode. We also commercially evaluated our pipeline in terms of market size, probability of success, what differentiated it from other molecules etc. so that we know where we stand in terms of the entire portfolio. This helped us put a structure in place." The company also realized that it could get much better value for its new chemical entity assets by moving the development cycle to the proof of concept stage. Despite having $200 million in the bank, the company was keen to unlock value and avoid getting into an escalation of commitment trap. Reddy said: "I am prepared to share my entire portfolio to a partner and even mentally I am prepared to give everything that comes out of my shop over the next five years provided he is prepared to fund every cent of it."

Soon this decision was made, DRL entered into a $56 million dollar agreement with a venture fund for the development and filings of documents pertaining to the period 2004-2005 and 2005-2006. In September of 2005, DRL, along with venture capital companies, provided funding of $52.5 million dollars to create an integrated drug development company to advance the clinical development of the company's new chemical entity assets. The new entity's mission was to take molecules to Phase II trials after which they would seek to out-license, co-develop or jointly commercialize opportunities. Significantly, the new entity, Perlecan Pharma Private Limited (PPPL), also has the first right of refusal on the future pipeline of DRL at fair market price value.

Analysis of Dr. Reddy Interview

Table 1 summarizes the failures encountered by Reddy as recorded in the interviews. It can be seen that Reddy consistently learned from his failures and ultimately built a vision and strategy which was successful.

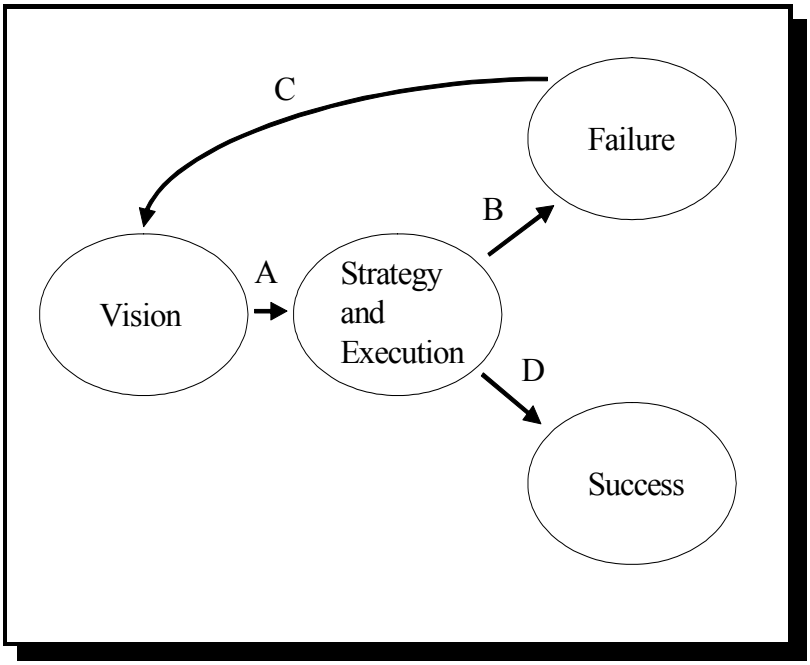
Table 1: Failures Encountered by Dr Anji Reddy

Initial vision	What went wrong	Learning	Revised strategy	Final outcome
Become the first domestic manufacturer of bulk drugs like methyl dopa, ibuprofen	Unable to initially achieve the quality standards needed	Process very technique dependent; stabilization of batch extremely important	Try a completely different route by conceptualization a new process	Developed the more elegant nitril process for methyl dopa resulting in US FDA approval a product that was 'the purest in the world'
Provide medicines to the common man at the price he could afford	Entered the formulations market but could not make an impact as Dr. Reddy's drugs prices were much to high	Important to achieve economies of scale	Expand market by selling raw material (bulk drug) to competitors while competing with them in formulations	Menalapril which was retailing at $1.20 a tablet was now available at Rs 1 per tablet
Discover new drugs by developing NCE's (new chemical entities)	Novo Nordisk In July 2002 returns DRF 2725 which had reached phase 3 clinical trials and in 03 decides to discontinue development on DRF 4158	Important to de risk the business	Enters into $56m agreement with ICICI Venture Funds for commercialization of ANDA's	Acquired Trigenesis
Enter US generics space by forming a joint venture with Schein Pharmaceutical Inc.	Schein, discontinues legal strategy after acquisition by Watson Pharamaceuticals Inc. in 2001	Understanding of how to negotiate the regulatory framework; necessity to have a basket of products and launch early	Dr Reddy files patent challenges under Para 4 of the US FDA	Successfully challenged Eli Lilly's patent for fluoxetine (Prozac) to get 180 day exclusivity
Enter the South American market through a joint venture in Brazil	Joint venture broke up in 2001 as both partners had differing outlooks for developing the market	Important to have a long term strategy in place and develop brands in a specific segment	Re entered Brazilian market on his own this time with a portfolio of 5 products in oncology segment	Market developing at a healthy pace

The data from Table 1 is distilled into a model of entrepreneurial failure shown in Figure 1. Reddy's entrepreneurial mindset and vision were responsible for the initial entrepreneurial strategy

that he adopted to fulfill this vision (shown as "A" in the model). This strategy, in five specific instances, resulted in failure (shown as "B" in the model). Despite this failure, Reddy, unwaveringly maintained the strength of his vision and used learning from failure to revise his vision and strategies (shown as "C" in the model). This revised execution strategy ultimately resulted in a successful outcome (shown as "D" in the model).

Figure 1: Preliminary Model of Entrepreneurial Failure



The model of entrepreneurial failure created from the interviews of Dr. Reddy suggest a recursive pattern of learning similar to that proposed by McGrath (1999). The model supports the theoretical position of Hackett and Dilts (2004), positing that business incubators are agents which rationally stage investments in order to increase the rate of venture success. The model also supports the Strategic Technology Assessment Review (STAR) process developed by McGrath and MacMillan (2000) to rationally determine the likelihood of success on new technology ventures. However, the model has an underlying logic of highly rational behavior on the part of the entrepreneurs. Some researchers have questioned the rationality of entrepreneurs. Velamuri (2002) has suggested that entrepreneurship is "the exercise of individual freedom with a view to creating value." McKenzie (2002) has suggested that: "Entrepreneurship describes the economic activity undertaken by social individuals in their pursuit of self-identity." The authors of this paper were not certain that the rationality of the model of entrepreneurial failure created from the interviews of Dr.

Reddy would hold over a broader sample. Therefore, the model was tested by comparing it to the entrepreneurial failures described in the narratives of the self identified entrepreneurs: Ron Morgan, Dan Newell, Tim Vasko and Cathy Walker.

Interviews with Ron Morgan, Dan Newell, Tim Vasko and Cathy Walker

These interviews were a part of a large fieldwork dataset. Approximately 22 hours of interviews with 25 self-identified entrepreneurs were recorded in 2002. The entrepreneurs who agreed to be a part of this study were from a wide variety of industries: clothing, communications, consulting, health care, hospitality, manufacturing, retail, software development, trading and yachting. The interviews of Ron Morgan, Dan Newell, Tim Vasko and Cathy Walker were selected from this dataset because they contained detailed examples of entrepreneurial failure.

Ron Morgan worked as a lawyer and as a judge in Centralia, Washington until the death of his infant daughter. He describes her death with these words: "… in '78, my first-born got sick at nine months and with a herpes virus and at thirteen months she died and I just didn't want to do it any more."

Morgan and his wife moved to Bellingham, Washington where Morgan assisted in marketing a tape deck cleaner. He built the marketing of this one product into the company's electronics division grossing over $13 million a year. Morgan joined a group of employees who left the firm to form their own company, Homex. Homes marketed a texture gun for applying textured plaster. After two years, Morgan sold his shares in Homex and looked around for another product he could develop. He described what happened next: "So I call up my brother-in-law and I go, 'What's that crazy brother of yours doing?' He sends me two things. He sends me one is a thing that you can hook in to an amplifier and so you can personalize 'cause his kid plays the guitar and it's too loud. And so he can get the effect. It's actually a good idea and it's a product now. But I didn't want to go in the electronics business. The other one was this funny little idea …if you think of a wooden frame…a wooden picture frame…A machine that would simultaneously cut out each side of that 'H' on the back of the wooden picture frame and then…I did bring a little show and tell, you put it together with one of three sizes of this little part. Called the Thumbnail®. Actually the genius of the thing is the name: 'The Thumbnail®.' It's now a trademark and it's generic in the industry."

Morgan developed the machinery to cut the mortises in the picture frames and developed the Thumbnail® into an industry standard. Morgan then leased the business to Neilson and Bainbridge Inc., one of the largest manufacturers of picture frames in the world. Morgan continued to collect royalties on the Thumbnail® for the next fifteen years.

Unfortunately Morgan's next ventures were not successful. Morgan attempted to market a plastic liner, called the Cargo Jacket, to owners of sports utility vehicles. The effort was unsuccessful and Morgan was forced to sell his million-dollar house on Lake Whatcom. He got a job as the Director of Properties at Port of Bellingham for four years and then re-wrote his bar

exams. A friend suggested that Morgan try doing mediation as a profession. He got approved as a mediator in 1999 and has developed a successful practice, CKM Mediation. Morgan is enthusiastic about his new venture, claiming it is the most fulfilling work he has found: "Whereas in the past, I've always been the marketing guy, I've never created anything. I created this thing. Totally. And it's evolved into something I'm driving. And it can go where I want it to go." Morgan ended the interview by referring to his past in this way: "I've broken my addiction" meaning he had ended his compulsion to develop and promote new products when he discovered the rewards of his new career as a mediator.

Dan Newell was the son of an Air Force Colonel. As a child, he had traveled extensively. Newell took an engineering degree at Stanford University, then interviewed at Microsoft. He described the environment he found at Microsoft at this time: "When I talked to people at other companies, you know I'd say, 'How do you like working there?' And they'd say, 'Yeh, this is a very good company and I enjoy working here.' And when I talked to people at Microsoft, they just said, "ITS GREAT!" Newell's intention when he joined Microsoft was to work for a few years, save up his money and then start a business of his own. He began in the C Compiler group, and then moved into the CD ROM division as one of its early members. This group brought out the multimedia encyclopedia, Encarta, the interactive movie guide, Cinemania and the reference software, Microsoft Bookshelf. Newell said that he got sidetracked from his intention as the stock became more valuable over time. He tracked the growth of Microsoft in this way: "I had a little chart outside my window that plotted the course of Microsoft. And you know the next year was like $70 million a year in revenue coming from $30 to $35 million. And Oreo cookies were $90 million. And we were on our way to Bumblebee Tuna, which was about $230 million. And, it kind of put Microsoft in perspective." The CD ROM division got re-organized and Newell found himself working under a supervisor that he did not respect. He decided to leave Microsoft, describing his financial situation as "…you know…30 years old…$2 million it's not too bad". Newell remodeled a 1906 house, traveled extensively and took a number of courses. However, he describes his activities as "discrete events" because each only involved a limited commitment of time.

In 1992, Newell's brother, who was still working at Microsoft, suggested that Newell come back and join the Broadcast PC initiative. Newell was the lead architect of the group chartered to place a PC in every living room. However, a conflict with a senior VP and a divorce led Newell to leave Microsoft for a second time.

Newell decided he would start a software company of his own. He described his vision this way: "I'd wanted to start a software company. And what would it be? I felt like I'd gotten to the point where I didn't just want to do anything. I'm not going to work for, you know, Arthur Anderson and the consulting group setting up back end services for tracking parts running though some, you know, auto plant. I was interested in, I felt capable of, I had some experience in trying to go take product development in directions that people had not gone before. And, you know, operating where there isn't a road map. And I wanted to do something and I also wanted to, if I could, re-

create the kind of work environment initially at Microsoft." Newell made a list of business ideas, and explored several of them. In particular, he became interested in film and video, and worked on a number of productions. He found, however, a serious objection to developing a business in the film industry. Newell set out his objection this way: "One of the things that I found is that in the straight film and video, I didn't like the people." Newell developed a company he called XD, which is film editor shorthand for cross dissolve. Within this company, he explored new ideas around which narrative could be explored in what Newell saw as the new media of interactive computing. A friend from Microsoft joined him and the business concept changed to what Newell described as wearable computing. Newell defined wearable computing as: "Right now, when you want to use computing, you go to it. You sit down at a desk, or you pull out a laptop and you sort of kick it off, and you're drawn into that world. You've left the world; you're now dealing with your computer. Wearable computing is more the idea of, 'How can computing facilitate whatever you are doing right now?'"
Newell felt that this business opportunity satisfied his criteria for undertaking an important mission.

In 1996, Newell and his friend re-named the company "Tangis". Newell re-married during this time and set the goal of being able to free himself of the routine of the business. He hired a President for the company, but could not keep himself out of the day-to-day management of the company. Newell also realized that the company had conflicting long term and short-term missions. The long-term mission of the company was to develop a fundamentally new way of harnessing computing power. However, in the short-term the company had to replenish its financial reserves. Unfortunately, Newell tried to raise equity capital in 2000, just as the venture capital market markets were pulling away from technology investments. Newell reduced staffing to cut down on the rate at which Tangis was burning through capital. The general slow-down resulting from the September 11th 2001 bombing of the World Trade Center forced Newell to put all of his staff on half furlong. On March 10, 2002, a couple of projects that Tangis was counting on for cash flow were delayed. Nine days before the interview of Newell, he had laid-off all the rest of his staff. Newell told me he was currently in the process of winding down the organization. He choked with emotion as he said, "I'm an entrepreneur. It didn't necessarily translate into another Microsoft, obviously." Newell figured at this point, he had lost between US$6 million and US$7 million of his own money on the venture.

Tim Vasko began his entrepreneurial career when he started a renovation company at the age of 19. He developed a custom t-shirt marketing company, Sporteze, in his third year of university and developed an investment banking company, Vasko Investment Products, after graduation. Vasko did a lot of wheeling and dealing in oil drilling and real estate partnerships. However, his big win occurred during the US Savings and Loans crisis of the late 1980s. Vasko described how his VIP Global Capital made a great deal of money while unwinding real estate investment partnerships: "I just told people that we're going to need your help to save your real estate....to save your real estate investment. The real estate wasn't all that important to the people who invested. Most of

them were doctors, lawyers, high-income individuals. It wasn't the money they had invested they were concerned about. It was this thing called phantom income. When real estate got foreclosed, they would get all of these tax write-offs as if they had sold the property. And what is called the negative capital account would accumulate up and be distributed to them with no cash. According to the IRS tax status they would have to pay tax on it. So they were all trying to protect their tax benefits. So my deal was you keep your tax benefits and I'll keep the real estate. And that's how I'll get paid. And so we put all the money back into real estate and saved the tax benefits until the capital accounts had expired on them. And ultimately I ended up with a portfolio of real estate and that's really how I made my money."

Vasko used the equity of this real estate base and his financial acumen to build a conglomerate of operating companies under the umbrella name Powerline. However, Vasko lost the company in 1996. His voice choked with emotion as he said: "It took me 15 years to build a company up to $30 million or $25 million or whatever it was and four days for it to crumble. And…uh…I moved to start again, and decided I would go into business again and I moved to Portland Oregon and did a consulting business and so forth; came up with this concept called Convergent Media Network, and I thought this was where the internet was going to go and this is what's going to happen there; but I really didn't have any energy to do anything to be honest…and in…This may be more than you want to know about my personal life. On Thanksgiving in November my wife told me that she wanted me to leave and I found myself out without a family; without a business and the only thing that happened was that Christmas I got my kids and they have lived with me ever since.".

Cathie Walker is an entrepreneur who had been named "Queen of the Internet" by the New York Times [Napoli, 1998 #1828]. Walker created one of the early portals on the Internet in 1995. She named the site Centre for the Easily Amused and attracted an on-line audience of 500,000 page-views per day. She started this venture while working as an employee of the University of Victoria. Walker described the instant hit she created: "I submitted it to Lycos, Yahoo and Netscape, and Netscape, which was now in version 1. And Netscape picked it up and Netscape featured it on their what's cool page. And it blew up Islandnet's server. So the site is two weeks old, and it's getting so much traffic that it brings everybody on Islandnet to a halt. And they had to put in a timer, five minutes on and five minutes off. They didn't know what to do because their servers couldn't handle it. And I can't remember how much traffic it was getting, but it was nothing compared to what it was getting a while ago."

Walker managed the site part-time on a borrowed computer while she continued as an employee of the University of Victoria. In 1997, she sold her company to a New York firm, Uproar. She described the sale this way: "I didn't sell it to them for a million dollars. I just wanted to change my life. What did I sell it to them for? US $50,000. Which, at that time was amazing…but ,again, changing my life. I would have sold it to them for ten dollars, just get me out of this secretarial job." As an employee of Uproar, Walker built a team of programmers and developed Centre for the Easily

Amused site into a very popular Internet community. Uproar was sold to Vivendi Universal. Vivendi decided to shut down the site in May of 2001. The loss of her Internet community forced Walker to start another company: Silly Girl. She is currently building the new venture, motivated by her passion for the community she has built.

Analysis of Interviews of Ron Morgan, Dan Newell, Tim Vasko and Cathy Walker

Table 2 summarizes the failures encountered by Ron Morgan, Dan Newell, Tim Vasko and Cathy Walker as recorded in the interviews. It can be seen that Morgan, Newell, Vasko and Walker did not consistently learn from their failures and ultimately suffered entrepreneurial failure.

The data from Table 2 is distilled into a model of entrepreneurial failure shown in Figure 2. The recursive linear model shown in Figure 1 did not appear to hold up when tested against the experiences of Morgan, Newell, Vasko and Walker. Reddy's ability to maintained the strength of his vision learn from failure were not always replicated by Morgan, Newell, Vasko and Walker. While Reddy's decision making appeared to be highly rational (as befits a scientist), a multitude of extraneous factors such as divorce, raising of families and personal tragedies seem to effect the decision making of Morgan, Newell, Vasko and Walker.

The recursive linear model shown in Figure 1 could not explain the inability of Morgan, Newell, Vasko and Walker to learn from some failures and not from others. Therefore, the authors of this paper had to re-think the underlying premise of their model. An alternative to a recursive linear approach is a holistic approach. For example, Adolphson, 2004) used a holistic perspective to build a new framework of economic thinking, one based on thinking of the ecology of economics.

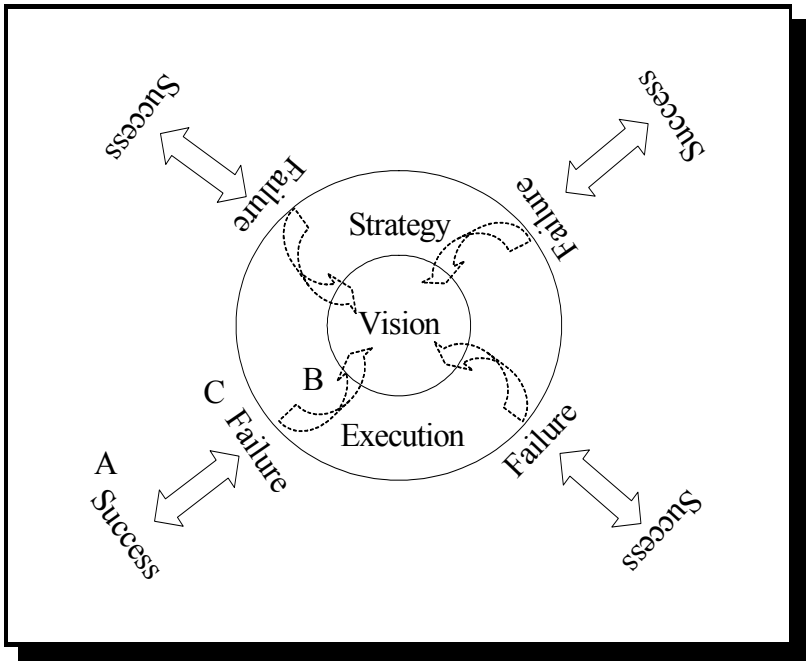
Cowles (1898, 1899) is credited with establishing the concept of ecological succession. Ecology, a term coined by Ernst Haeckel, studies "the relations of living organisms to the external world" (Tamm, 2004). Ecological succession is the process by which a natural community moves from a relatively simple level of organization to a relatively more complex level of organization. Allee (1932) showed that success and failure in biological terms was more complex than a mere struggle for survival; cooperation amongst competitive species and exogenous factors had to be taken into account in properly model the evolution of species. Similarly, Tisdale (2004) has shown that the modeling of economic competition benefits from consideration of ecological succession.

Figure 2 attempts to capture the concept of ecological succession in a model of entrepreneurial failure. Morgan, Newell, Vasko and Walker's entrepreneurial vision (shown in the center of the model) were responsible for the initial entrepreneurial strategy that they adopted (shown as the second ring of the model). This strategy, either resulted in success (shown as "A" in the model) or in a failure that led to revision of the vision and strategy (shown as "B" in the model). However, pressures on the venture could also cause the ecological collapse and ultimate failure of the venture (shown as "C" in the model).

Table 2: Failures Encountered by Ron Morgan, Dan Newell, Tim Vasko and Cathy Walker					
Entrepreneur	Initial vision	What went wrong	Learning	Revised strategy	Final outcome
Ron Morgan	Establish new invention in marketplace	Operation of marketing company was expensive	Better at developing company than running it	Lease product to Neilson and Bainbridge	Successful 15 relationship with Neilson and Bainbridge
	Replication of success of "Thumbnail"	Cargo Jacket was not well received in marketplace	none	Sold home and returned to the practice of law	Entrepreneurial Failure
Dan Newell	Re-create the kind of work environment found initially at Microsoft	Management of company left to others	None possible	Lost $6-$7 million and closed venture	Entrepreneurial Failure
Tim Vasko	VIP Global Capital founded to turn-around troubled real estate ventures	Opportunity created by failure of Savings and Loans companies ended	Apply same logic to other ventures	Applied same logic to operating companies	Developed Powerline, a successful printing company
	Expand Powerline into developing Chinese trade	Management of company left to others; expansion took capital from Powerline	Relationship with children more important than business	Took children and moved to Canada	Entrepreneurial failure
Cathy Walker	Create interesting website	Website became very popular, but Walker could not generate income	Partner with others who can do marketing	Sold company to Uproar	Satisfactory 2 year strategic partnership
	Develop popular internet site	Bottom fell out of internet advertising market	None possible	Vivendi decided to close site	Entrepreneurial Failure

While the model of entrepreneurial failure created from the interviews of Dr. Reddy suggested a recursive pattern of learning similar to that proposed by McGrath (1999); the model of entrepreneurial failure, created from the interviews of. Morgan, Newell, Vasko and Walker, proposes a more intricate dynamic. The advanced model of entrepreneurial failure explains both the ability of the individual to learn from failure and the possibility that success and failure can be caused by exogenous factors.

Figure 2: Advanced Model of Entrepreneurial Failure



CONCLUSIONS

The research reported in this paper investigated phenomenon of entrepreneurial failure through hermeneutic analysis of entrepreneurial narrative. The researchers found rich data in the narratives of the five entrepreneurs studied. The technique of hermeneutic analysis proved fruitful in the development of a complex model from the narratives studied. Successive interpretations of the data resulted in deeper and deeper understanding of the phenomenon of entrepreneurial failure.

The researchers adopted "deviation from the entrepreneurs' desired expectations" as the working definition of entrepreneurial failure in this study. The researchers found that sometimes the individuals and organizations of this study learned from entrepreneurial failure and thus improved on their chances of ultimate success. However, sometimes the entrepreneurs studied did not learn from their failure and other times it appeared that there were no lessons to be learned from entrepreneurial failure. As a result of these observations, the authors have created a model of entrepreneurial failure based on an ecological perspective.

The ecological model of entrepreneurial failure positions failure within the context of both endogenous and exogenous forces. Previous studies of entrepreneurial failure have focused on endogenous forces and have successfully shown the importance of learning from entrepreneurial failure. However, the research reported in this paper has shown that exogenous forces can also cause entrepreneurial failure. Often there is no learning possible from failure caused by exogenous

forces. Rather, this kind of failure must be seen as a collapse of the business environment in which the entrepreneur has chosen to place his or her venture.

DISCUSSION

This research has resulted in the development of a theoretical model of entrepreneurial failure. The model developed in this research meets the criteria for theory set out by Weick (1989): "an ordered set of assertions about a generic behavior or structure assumed to hold throughout a significantly broad range of specific instances." The model offers the promise of both descriptive and prescriptive understanding of the phenomena of entrepreneurial failure. Further empirical research is required to test the validity and reliability of the model. The validity of the model will be tested by formal measurement of the accuracy of information and its generalizability (Creswell & Miller, 2000). The reliability of the model will be tested by measurement of the likelihood of similar conditions giving rise to similar observations (Aunger, 1995).

This paper extends the ecological perspective from the organizational literature into the entrepreneurship literature. Hannan and Freman (1977) are credited with establishing a population ecology perspective within management research. This perspective investigates the relationship between organizations and their environment as an alternative to the adaptation perspective, which investigates the adaptability of organizations over time. Hannan (2005) notes that organizational ecology builds on the assumption "that core structures of organizations are subject to strong inertial pressures and effort at changing such structure substantially increase the chances of failure." This paper extends the organizational ecology perspective into the entrepreneurship literature. While organizational ecology tends to examine the life stories of organizations (Hsu & Hannan, 2005); this study recognizes the importance of examining the life stories of entrepreneurs. The model developed in this study offers important new insights to entrepreneurship researchers and to entrepreneurship practitioners.

Entrepreneurship researchers can use the model developed in this paper to envision the complex relationship between the vision of the entrepreneur, his or her strategy and the forces of the business and social environment. One of the difficulties faced by entrepreneurship researchers has been the idiosyncratic nature and non-linear relationships (Stevenson & Harmeling, 1990) inherent in the phenomenon. Low and MacMillan(1988) indicated the need for more contextual and process oriented research in the field of entrepreneurship. This study suggests a model for such contextual analysis in the investigation of entrepreneurial failure. While the study does not refute the findings of McGrath (1999), it suggests that entrepreneurial failure must be viewed within the context of endogenous and exogenous forces.

Entrepreneurship practitioners can use the model developed in this paper to determine whether or not there is learning available from particular instances of entrepreneurial failure. The model presented allows entrepreneurs the means to determine if failure was caused by forces which

the entrepreneur can control, such as a flawed vision or strategy or if failure was caused by forces outside of the control of the entrepreneur. It is hoped that further development of this research can provide prescriptive suggestions for practicing entrepreneurs.

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