Volume 7, Number 2 **ISSN 1087-9595**

ACADEMY OF ENTREPRENEURSHIP JOURNAL

An official Journal of the

Academy of Entrepreneurship ®, Inc.

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Academy Information
is published on the Allied Academies web page
www.alliedacademies.org

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Whitney Press, Inc.

Printed by Whitney Press, Inc.
PO Box 1064, Cullowhee, NC 28723
www.whitneypress.com

The *Academy of Entrepreneurship Journal* is owned by the Academy of Entrepreneurship, Inc., and published by the Allied Academies, Inc., PO Box 2689, 145 Travis Road, Cullowhee, NC 28723, USA, (828) 293-9151, FAX (828) 293-9407. Those interested in subscribing to the *Journal*, advertising in the *Journal*, or otherwise communicating with the *Journal*, should contact the Executive Director at info@alliedacademies.org.

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ACADEMY OF ENTREPRENEURSHIP JOURNAL

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LETTER FROM THE EDITOR

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

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

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MANUSCRIPTS

A NEW MEASURE OF ENTREPRENEURIAL DECISION-MAKING STYLE

Judy Gray, Monash University, Australia

ABSTRACT

This study examines the development of a new measure: The Entrepreneurial Decision-Making Inventory to investigate a previously neglected area of research, namely entrepreneurial decision-making style. Questionnaires were distributed to 578 Victorian New Enterprise Incentive Scheme graduates resulting in 255 useable responses. Confirmatory factor analysis using AMOS 4.0 (Arbuckle and Wothke, 1999) indicated three distinct dimensions in the instrument: Convergent, Divergent, and Inventive decision-making styles. Semi-structured interviews were conducted to gather qualitative data which supported the confirmatory factor analysis and confirmed the multi-dimensional nature of the construct. The new instrument should assist researchers and practitioners to further understanding of the role of decision-making in small business development and growth.

INTRODUCTION

The decision-making process underlies business activity and has fundamental importance for problem-solving, the development of business plans, and goal-directed behavior. Mintzberg, Rasinghani, and Thearet (1976:246) defined a decision process as "a set of actions and dynamic factors that begins with the identification of a stimulus for action and ends with a specific commitment to action." The importance of decision-making has been well recognized by researchers: "If one process in particular characterizes the manager's or entrepreneur's job it is that of making decisions or solving problems" (Mosley, O'Brien and Pietri, 1991:5). Given the importance of decision-making in business, the current study investigates entrepreneurial decision-making based on the assumption that decision-making plays a central role in small business performance.

While considerable research has focused on decision-making in organizations (eg., Buttner and Gryskiewicz, 1993; Hoy and Hellreigel, 1982; Nutt, 1989), the extant literature often views small businesses as merely smaller versions of large organizations. However, the use of various business and economic principles that assist in explaining corporate manoeuvres may be of little assistance in understanding the successes and failures of small business. While the conditions that influence the decision to establish a business have been given adequate attention in the entrepreneurship literature, Amit, Gosten and Muller (1990:1233) commented that there has been "surprisingly little theoretical, quantitative and rigorous literature [which] focuses on decisions of entrepreneurs to develop their ventures." In a meta-analysis of studies which examined small

business failure, Berryman (1994) recommended that further research should be conducted to observe the processes and decision-making within small firms. The current study examines decision-making as a process in order to address the deficiencies identified in the literature, and to make a contribution to the development of theories of small business management.

There are a number of difficulties in attempting to discover best prescriptive procedures for decision-making. For example, human decision-making processes cannot be repeated to test the effects of different approaches (Lipshitz, 1995), and different paradigms cannot be compared in terms of the goodness of their results (Watson, 1992). Several approaches to decision-making are evident in the literature. The 'scientific method', where prescriptive frameworks featuring stages or steps in the decision-making process has been described in detail by many researchers (e.g., Bantel and Jackson, 1989; Dewey, 1933; Robbins, 1994). The scientific method provides a logical foundation for decision-making, but fails to ensure good outcomes (Nutt, 1989). Further, in a study of 150 people including fire chiefs, tank platoon leaders, and design engineers making decisions under time pressure, Klein (1989:51) concluded that "...relatively few decisions are made using analytical processes, such as generating a variety of options and contrasting their strengths and weaknesses." Typically, decision-makers do not have the luxury of analytically working through all options attached to a problem (Lord and Maher, 1990). Consequently, although rational models of decision-making are logical, the response to the need for a decision is usually too rapid to allow for orderly sequential analysis (Simon, 1987).

The behavioral decision theory literature elucidates decision-making procedures used to counter the limited human ability to process information. For example, studies have investigated heuristics, the 'rules of thumb' used to reduce mental effort and to simplify decision-making (e.g., Busenitz and Barney, 1997). However, relying on heuristics may interfere with successful problem solving if expert knowledge is applied inappropriately. "Creative strategies for problem solving may require a suspension of one's expertise" (Finke, Ward and Smith, 1992:173). Therefore, even if decision-makers are aware of the need for creative strategies that go beyond the heuristics they normally employ, there is still the problem of knowing when applying expertise is counter-productive and creative thinking is necessary. Decision-makers often arrive at solutions intuitively without being able to report how they attained the result (Agor, 1986; Watson, 1992). Bowers, Regehr, Balthazard and Parker (1990) propose that intuitions are like hunches that may or may not lead to correct insights or solutions. Thus "managers acquire a set of intuitions, a problem-solving style which is one of the key components of effective managerial behavior" (Simon, 1987:63). Therefore, decision-making style has been defined as the "learned, habitual response pattern exhibited by an individual when confronted with a decision situation" (Scott and Bruce, 1995:820).

Creative decision-making is important because it enhances the quality of solutions to life's problems (Milgram, 1990). Creative behavior is considered to be highly intentional even if the intention is not initially evident. According to Albert (1990:19), a person's creativity and personal identify are both emergent: "...they drive one another and are dependent on the other's development." Thus the study of creative decision-making is particularly important in terms of emerging entrepreneurs. Further, pragmatic approaches to the development of creativity have suggested that it is possible to train people to think in more creative ways (Finke, Ward and Smith,

1992). Therefore, research on creative decision-making could lead to the development of new and more effective creative techniques.

Measurement of Decision-Making Style

Several studies on decision-making have applied the Kilmann and Herden (1976) model of organizational effectiveness criteria to small business (Brodzinski, Scherer and Weibe, 1990; Hoy and Hellreigel, 1982). The underlying premise of the Kilmann and Herden (1976) model, based on Jung's theory of psychological types, is that managers perceive and solve problems in different ways depending on their preferred problem-solving style. The model has been tested using the Myers-Briggs Type Inventory (MBTI) (Myers and Briggs, 1962). Other studies have used the MBTI to investigate decision-making and problem solving. For example, Nutt (1989) developed a Decision Style Survey based on the Jungian classification categories. However, the MBTI was considered too long and time consuming to administer in the current study, and has been discredited as a suitable research instrument (Boyle, 1995). Further, Wiggins (1989:538) stated that "the principal stumbling block to more widespread acceptance of the MBTI lies in the bipolar, discontinuous types to which the test authors are firmly committed." In view of the controversy surrounding the use of the MBTI in research, a multi-dimensional instrument to evaluate entrepreneurial decision-making style, taking into account the criticisms of the MBTI was developed in the current study.

Mosley, O'Brien and Pietri (1991) tested managerial problem-solving styles using a 20-item questionnaire which was a simplified version of the Keirsey Temperament Sorter (Keirsey and Bates, 1984) derived from the Myers-Briggs Type Inventory. Although the current study tested the inventory used by Mosley et al. (1991) in the pretest, the instrument lacked content validity and was considered inappropriate for the purpose of the current study.

Kirton (1976) proposed a theory describing different cognitive styles of creativity, problem-solving and decision-making within an organizational context. He developed a 32-item, self-report scale, the Kirton Adaption-Innovation Inventory (KAI) to measure individual differences in adaption-innovation. Respondents with low scores were labeled Adaptors 'preferring to do things better', while respondents with high scores were labeled Innovators, 'preferring to do things differently' (Taylor, 1989:297). Thus, adaptors and innovators are determined according to whether the score falls below or above the mean (Kirton, 1987). Most applications have treated the KAI as a summed scale (eg., Goldsmith and Kerr, 1991; Holland, 1987). Consequently, a criticism of the KAI relates to the treatment of measures as unidimensional or bi-polar (Caird, 1993; Payne, 1993). According to Payne (1993:7), "multi-dimensional models seem to suggest the possibility of more sophisticated explanations/theories." A further criticism of the instrument relates to the instructions. Respondents are required to assess "How difficult or easy is it to present yourself consistently over a long period?" The degree of difficulty in maintaining an image may not equate with decision-making style. For these reasons, the KAI was considered inappropriate for use in the current study.

According to Scott and Bruce (1995), interest in decision-making style has been hindered by the lack of a psychometrically sound instrument for measuring decision-making style and yet, theoretical progress is impossible without adequate measures (Schwab, 1980). Therefore, a new instrument specifically to ascertain entrepreneurial decision-making style was developed in the

current study based on the assumption that "in small companies, strategies [the outcomes of decisions] are usually the sole reflection of the owner/operator" (Olson and Currie, 1992:49).

The objective in designing a new instrument was to address the deficiencies evident in the instruments described previously and to tap into the underlying characteristics of decision-making style such as focusing on detail, risk-taking, or taking the initiative. Further, the current study focuses on the adequacy of the Entrepreneurial Decision-Making Inventory from the perspective of scale construction. In most studies where new instruments are developed, the underlying factor structure is not theoretically predicted but is derived post hoc using exploratory factor analysis. Even though items cluster together, the statistical technique does not ensure that the items are measuring the same theoretical content. In contrast, the current study uses confirmatory factor analyses to examine the factor structure by testing hypothesized factor solutions derived from theory.

According to Schriesheim, Powers, Scandura, Gardiner and Lankau (1993), Confirmatory Factor Analyses (CFA) can improve the rigor with which content validity is assessed. CFA has a number of advantages over exploratory factor analysis. CFA tests the theoretically derived hypothetical structures of an instrument and overcomes the limitations associated with mathematically determined factor structures using exploratory factor analysis (Long, 1983). Empirical data reduction techniques such as exploratory factor analysis do not address the issue of content adequacy which should be based on the theoretical correspondence between a measure's items and a construct's delineated content domain (Schriesheim et al., 1993). However, specific theoretical relationships among observed indicator items can be identified and tested using CFA.

Apart from examining the factor structure of the instrument, there is a need to establish whether entrepreneurial decision-making is a multi-dimensional construct. Qualitative data were gathered in the current study to assist in examining whether the theoretical distinctiveness of the factors could be established. The current study focuses on the psychometric properties of the instrument under review and therefore, the substantive findings of the study have been omitted.

METHOD

Quantitative and qualitative research methods were combined in the current study to enable triangulation, and to examine the results for convergence (Creswell, 1994). The use of multiple methods strengthens the researcher's claims for the validity of the conclusions drawn where mutual confirmation of results can be demonstrated (Bryman, 1988). Further, Patton (1990) suggested that where significant patterns of responses emerge through quantitative methods, it is often helpful to fill out the meaning of those patterns through in-depth study using qualitative methods to give substance to the areas of focus. Consequently, quantitative data were gathered by means of a questionnaire and semi-structured, face-to-face interviews were conducted to gather qualitative data.

Data Collection

A self-administered questionnaire was distributed to 578 graduates from the New Enterprise Incentive Scheme (NEIS) conducted at centers in metropolitan and country Victoria. which included the instrument, the Entrepreneurial Decision-Making Inventory resulting in 255 useable responses

(a 45 per cent response rate). In-depth, semi-structured interviews were conducted with approximately ten per cent of respondents (25 in all) based on stratified proportionate sampling to represent both metropolitan and regional respondents. The following question was used during interviews to yield comments concerning decision-making style: "How do you go about making major decisions in your business?"

Sample

Over three-quarters (77 per cent) of respondents were male. Almost two-thirds (63 per cent) of the sample was aged under 40 years when the respondents started their businesses. The sample was better educated than the Victorian population with over half (52 per cent) having post-secondary qualifications. The majority of respondents (80 per cent) had businesses that continued to operate at least a year after completing the NEIS course. Only 13.7 per cent of respondents had ceased trading (the criterion for business failure in the current study) and 3.1 per cent of respondents had sold their businesses. A further two per cent of respondents had never started in business. The majority of respondents (64 per cent) did not employ others.

Instrumentation

The new instrument design process was commenced by drafting specific measurement questions based on the literature (for example, Buttner and Gryskiewicz, 1993; Keirsey and Bates, 1984; Kirton, 1976, 1984; Mosley, O'Brien and Pietri, 1991). The draft instrument was tested among academic colleagues (N=22) and the interrater reliability estimate was calculated based on the formula suggested by Goodwin and Goodwin (1985:7): "number of coding agreements/ number of coding agreements plus number of coding disagreements." 'Agreement' meant that raters concurred on the classification of an item. The resulting mean interrater reliability estimate for the instrument was .93, ranging from a low of .86 to 1.00. Modifications to the instrument were made according to the results obtained and suggestions for improvements.

Respondents were required to indicate on a five-point Likert scale how often they used particular decision-making styles. All items in the 17-item scale were rated from never (0) to most of the time (4). The statements were presented in random order to minimize order bias. The standardized item Cronbach alpha coefficient for the instrument was .69, which exceeded the Cronbach alpha of .63 for a new instrument developed by Niehoff, Enz and Grover (1990:343), who stated that the result was "reasonable, considering the newness of the scale."

Analyses of Data

The statistical software package, AMOS (Arbuckle and Wothke, 1999) was used to undertake confirmatory factor analysis (CFA) of quantitative data. The most basic form of CFA is a one-factor congeneric measurement model as described by Jöreskog (1971) which enables the specified interrelationships among observed variables for a single latent factor to be examined in detail. The method allows for differences in the degree to which each individual measure

contributes to the overall composite (latent) variable (Fleishman and Benson, 1987) and thus the model provides a more accurate representation of the data.

The model produced as a result of confirmatory factor analysis formed the conceptual framework for analysis of qualitative data as suggested by Gray and Densten (1998). Aspects concerning decision-making style were inferred from an examination of the comments which were categorised according to the three identified themes. Comments have been used to illustrate the themes in each category and selected background details have been provided for interest while anonymity of respondents has been preserved.

Interrater comparisons were used to assess face validity and to check that the comments assigned to categories reflected the designated theme. An independent researcher recoded the data and interrater reliabilities were calculated. The mean interrater reliability of 0.86 was adequate given the suggestion that 0.70 (70 per cent) intercoder reliability is considered satisfactory (Miles and Huberman, 1984).

RESULTS

Confirmatory Factor Analysis

A series of one-factor congeneric measurement models was calculated based on substantive theory. Although three observed variables are considered statistically adequate for a just identified model, Chin (1998) suggested that four items loading on each latent variable is preferable to test for convergent validity. Item 17, Prefer to delegate routine tasks was omitted from the start as a result of feedback from respondents indicating that the item was irrelevant as the majority of respondents did not employ others. Items with t-values which were not significant and where the standardized regression weights indicated weak effects (less than 0.3) were not good measures of the construct and were omitted from further calculations. Three factors were generated with four items loading on each factor. Table 1 provides details of the items that were retained and the three factor structure of the instrument.

Several summary measures of the overall fit of the model to the data were calculated. Table 2 provides details of the fit statistics including the Goodness of Fit Index (GFI) and the Adjusted Goodness of Fit Index (AGFI). Values close to unity for the GFI and the AGFI indices indicate that the model accounts for most of the joint variances and covariances among observed variables in the model. Unlike the chi-square statistic, the GFI and AGFI indices are independent of sample size and are relatively robust against departures from normality (Rowe, 1995). The Root Mean Square Residual error (RMR) is a measure of the average of the residual variances and covariances when the observed and predicted covariance matrices are compared and should be less than 0.05. Additional indices for assessing model fit are provided including the Comparative Fit Index (CFI) and the Tucker Lewis Index (TLI). Values for CFI are constrained to fall between 0 and 1 but should be greater than 0.95. Values for TLI, an incremental fit index should be greater than 0.95 but values greater than 1.0 indicate a lack of parsimony (Rowe, 1995).

Table 1
Confirmatory Factor Analysis for the Three-Factor Entrepreneurial Decision-Making Style Inventory
(N=255)

Item No.	Factor Items	X	λ_x	δ
	Convergent			
5	Stick to tried and true methods	X_1	.525	.106
7	Use a common sense approach	X_2	.782	.098
11	Pay attention to detail	X_3	.359	.101
14	Stick to a routine	X_4	.178	.102
	Divergent			
8	Work on many ideas at once	X_5	.447	.060
12	Approach a problem from a new angle	X_6	.671	.095
15	Enjoy new situations	X_7	.614	.111
16	Prefer to do things differently	X_8	.476	.109
	Inventive			
1	Come up with new ideas	X_9	.571	.107
6	Come up with a risky idea	X_{10}	.534	.123
10	Invent a way of your own	X_{11}	.357	.114
13	Always manage to think of something	X_{12}	.672	.082

X = Manifest Variable, λ_x = Lambda, δ = Residual (error term).

Table 2
Entrepreneurial Decision-Making Style Inventory Fit Statistics
(N=255)

Model	χ^2	df	χ^2/df	P	GFI	AGFI	RMR	CFI	TLI
Factor 1 (4 items)	1.519	1	1.519	0.218	0.997	0.970	0.012	0.993	0.961
Factor 2 (4 items)	1.990	1	1.990	0.137	0.992	0.961	0.025	0.983	0.950
Factor 3 (4 items)	0.440	1	0.440	0.507	0.999	0.991	0.008	0.999	0.974
12 item model	232.351	29	8.012	0.000	0.865	0.802	0.078	0.663	0.576
3 composite factors model	2.836	1	2.836	0.092	0.993	0.956	0.014	0.980	0.940

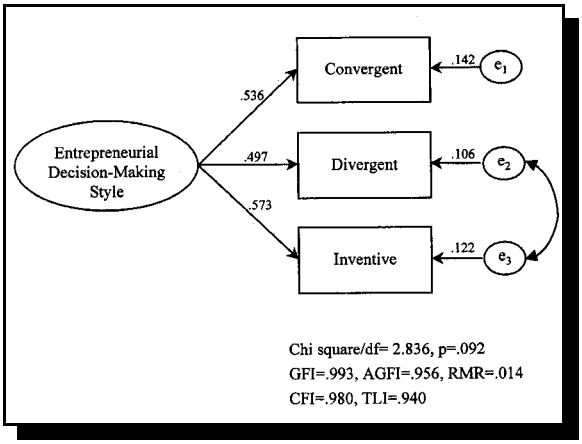
Dimensionality of The Entrepreneurial Decision-Making Style Inventory

In order to check whether the Entrepreneurial Decision-Making Style Inventory was unidimensional or multi-dimensional, a null hypothesis, that there were no differences among the factors identified in previous analyses, was tested. A congeneric model was tested with all 12 items constituting one factor which produced a chi-square value of 232.351 df= 29, p=.000, for a chi-square/degrees of freedom ratio of 8.012, a GFI of .865 (AGFI of .802), and a RMR Residual of .078. The Comparative Fit Index of .663 and the Tucker-Lewis Index of .576 which should have

approximated 1.0 indicated a poor fitting model. Overall, the results suggest that this was not a robust congeneric model and therefore, the model did not provide an adequate fit of the data.

Further testing was conducted with the items which loaded on two of the factors to check whether each factor was a single factor. A congeneric model was established with all eight items. Analyses indicated that the Goodness-of-Fit Index of .887 was still not as good as the fit statistics obtained when the factors were analysed separately. The above analyses confirmed that the model should comprise of three factors in order to parsimoniously fit the data, and therefore the inventory would appear to be multi-dimensional.

A final model was estimated for Entrepreneurial Decision-Making Style based on the three composite factors. The composite factors were calculated by multiplying each raw score for each case by the corresponding standardized weight. The process ensures that the estimation of the composite factor is proportionally weighted by the actual contribution made by each indicator (item). Further, the composite factors take into account individual and joint measurement error of the item indicators (Rowe, 1995). Table 2 indicates that the model produced a chi-square value of 2.836, df= 1, p=.092, for a chi-square/degrees of freedom ratio of 2.836, a GFI of .993 (AGF of .956), and a RMR of .014. The Comparative Fit Index of .980 and the Tucker-Lewis Index of .940 indicated satisfactory fit of the model compared to the null or independence model in which no relationships amongst the variables were proposed. Figure 1 provides a graphic representation of the measurement model.



Based on the nature of the items loading on each factor, factor one was named 'Convergent', factor two 'Divergent', and factor three 'Inventive'. Rummel (1970:473-474), suggested that in selecting factor names, it is important that the labels "communicate the essence of the results . . . [to enable] the rapid identification of similar factors across studies." Further, labels should be "descriptive of the interrelationships in the data."

Hudson (1966), in a study of mental processes, classified respondents into two groups: 'convergers' who were narrow and focused on their point of view and concentrated on practical results; and 'divergers' who tended to enlarge problems and expand the boundaries of consideration and sought new things to consider. Mathôt (1989:52), in discussing thought processes in innovation,

referred to Convergent, a logical thought process which complemented Divergent, a more creative thought process. Thus Convergent thinking is ideal for well-defined problems for which there is only one allowable conclusion (Finke, Ward and Smith, 1992). Items reflecting a strongly Convergent style of decision-making in the inventory included: "Use a commonsense approach" and "Stick to a routine". Divergent decision-makers were considered to be more likely to take risks and to approach a problem from a new angle. Thus Divergent thinking allows the exploration of different ideas and idea combinations that may serve as solutions (Finke, Ward and Smith, 1992). Items reflecting a strongly Divergent decision-making style in the inventory included: "Enjoy new situations", and "Work on many ideas at once".

The third factor included three items such as "Come up with new ideas" and "Always manage to think of something" and was labelled Inventive. Inventive behavior, or the generation of new ideas, has been linked to decision-making style in the literature (e.g., Woodman, Sawyer and Griffin, 1993) and is closely associated with innovative and creative behavior. Thus, the label was selected based on the nature of the items in the cluster and the literature including the Kirton Adaption Innovation Inventory (KAI) which described an Innovator as someone who prefers to "do things differently ... [and] discovers problems and avenues of solution" (Kirton, 1984:137-138). Therefore, Inventive decision-making style relates specifically to creative strategies for problem solving.

Qualitative Data

Interviewees commented on the way they made major decisions in business and the responses were analyzed in relation to the style of decision-making that was evident. A quasi-statistical approach was used to calculate the frequencies of comments classified in each category. Table 3 presents the frequencies, percentage frequencies, and interrater reliabilities for each category.

Convergent Decision-Making Style

Interrater reliability: 0.88: Convergent decision-making style represents a conservative and cautious approach to problem solving in business. The concept is related to the theory that convergers tend to be narrow and focused on their point of view and concerned with the details in a decision and the practical results (Hudson, 1966). A total of nine comments reflected a Convergent style of decision-making including:

"I'm pretty cautious when it comes to making big decisions so I think about all the alternatives and I often lie awake at night nutting it all out" (Male, 49 years old, hydroponic farming business, four employees).
"I'm a stickler for methodically evaluating all the alternatives- just the way I was trained to do. I'm a great one for attention to detail" (Male, 60 years old, accountancy practice, no employees).
"I'm usually in here by six and the first thing I do is sit down and work out all the things to do that day and I like having them in my mind so that I can decide what has to be done" (Female, 32 years old, garment manufacturing business, seven employees).

The comments reflected a decision-making style characterised by paying attention to detail, carefully weighing up alternatives and being methodical in order to solve problems in business. A Convergent style has been described as "providing a logical framework for problem solving as it helps to select the best alternative from those available by narrowing down the range of possibilities" (Stevens, 1988:23).

Table 3
Analysis of Interview Data: Frequency, Percentage Frequency Distributions, and Interrater Reliabilities

Decision-Making Style	f	%[a]	I.R.[b]
Convergent	9	39	.88
Divergent	8	35	.87
Inventive	6	26	.83
Theme total	23	100	

[a] Percentages have been rounded [b] Interrater Reliability

Divergent Decision-Making Style

Interrater reliability: 0.87: Divergent decision-making style is considered most appropriate in novel situations which challenge entrepreneurs. The style is consistent with the theory that 'Divergers' tend to enlarge problems, expand the boundaries of consideration and seek new things to consider (Hudson, 1966). Divergent thought processes are considered more creative than thought processes associated with a Convergent style (Mathôt, 1989; Shouksmith, 1973). A total of eight comments reflected a Divergent style of decision-making including:

"We make decisions without a lot of deliberation or discussion. We are pretty flexible really" (Male, 56 years old, with partner, accommodation business, no employees).
"As soon as one project is underway, I'm already thinking of the next" (Female, 39 years old, training consultancy, no employees).
"It seemed a pretty good idea and there was no harm in trying it out" (Male, 52 years old, fencing business, no employees).

The comments reflected a decision-making style that is adapted to novel and challenging situations where a degree of spontaneity is required to solve problems in business. A Divergent decision-making style has been described as a process that ". . . creates a large range of ideas for solutions. It requires looking beyond the obvious, creating ideas which may, at first, seem unrealistic or have no logical connection with the problem" (Stevens, 1988:23).

Inventive Decision-Making Style

Interrater reliability: 0.83: Inventive decision-making style represents a creative approach to problem solving where entrepreneurs formulate innovative solutions. The concept is consistent with the theory that creativity is the generation of ideas that results in improved efficiency or effectiveness (Matherly and Goldsmith, 1985). Similarly, Kirton (1984:137) described an 'Innovator' as someone who prefers to "do things differently [and] discovers problems and avenues of solution." A total of six comments reflected an Inventive style of decision-making including:

"A lot of it was trial and error - trying out new ideas and sometimes coming up with my own ways of doing things" (Female, 30 years old, retail business, no employees).
"I'm good at thinking of lots of new ideas" (Male, 53 years old, property services business, one employee).
"I just go for it and I'm always thinking up new ideas" (Male, 49 years old, hydroponic farming business, four employees).

The comments reflected a decision-making style that is characterised by the generation of unusual ideas as a means of solving problems in business.

Different aspects of decision-making style were clearly discernible in the comments which were classified into Convergent, Divergent, and Inventive decision-making style according to the definitions generated in the quantitative analysis. The comments expanded the definitions of the factors by providing contextual information concerning entrepreneurial decision-making style. Therefore, the qualitative data provided content validation and support for construct validation of the factors in the Entrepreneurial Decision-Making Inventory.

DISCUSSION

The Entrepreneurial Decision-Making Inventory was developed in the current study to investigate a previously neglected area of research, namely entrepreneurial decision-making style. The qualitative procedures included in the study provided a means of accessing unquantifiable aspects of the research and captured respondents' personal experiences and perspectives. Overall, The qualitative data supported the confirmatory factor analysis and confirmed the multi-dimensional nature of the construct. The results highlight the inadequacies of bi-polar or unidimensional scales used in previous instrument designs such as the KAI (Kirton, 1976) or the Keirsey Temperament Sorter (Keirsey and Bates, 1984) to evaluate decision-making. Therefore, the instrument design in the current study supports Payne's (1993) comments that a multi-dimensional model seems to account for the complexities of decision-making style in a more appropriate manner .

Several limitations need to be taken into account in this study. Individuals were invited to participate in the study and therefore self-selection by respondents could influence the results. Data gathering techniques relied on self-reporting which may limit the conclusions that can be drawn.

In order to assess the validity of the new instrument, replication of the study is required using multiple samples including: sole traders who are entirely responsible for all the decision-making;

small business owners who are in partnerships; as well as individuals involved in medium-sized businesses where collaborative decision-making occurs. Samples should draw on populations interstate and overseas. The potentially moderating effects of variables such as risk-taking propensity, optimism, and decision comprehensiveness need to be investigated. The relationship between previous experience and decision-making style requires further study to determine how entrepreneurs can draw on previous experience and education to improve decision-making.

The development of a new instrument to evaluate decision-making style may assist in the identification of businesses at risk of failure. With professional counselling, measures could be initiated to reduce the likelihood of failure and the personal and social consequences that often accompany business closure.

CONCLUSION

In conclusion, the current study was conducted in order to advance research on entrepreneurial decision style. The use of confirmatory factor analyses techniques in the current study provided a rigorous assessment of the content and construct validity of the instrument which was supported by the qualitative data. A reliable and valid measure of entrepreneurial decision making style should be of interest to researchers and practitioners to further understanding of the role of decision-making and its relationship to key dependent variables such as business strategy and business success.

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WHO IT IS AND WHAT IT DOES: FINDING THE "HEFFA-PRENEUR"

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ABSTRACT

The Entrepreneur - fact or fiction? Mover of economic phenomena or incidental character? Certainly the identity of the entrepreneur intrigues us. We know one when we see one. Or, perhaps, the entrepreneur is one because (s)he likes the sound of the word and claims it for personal reasons. For years the debate has continued on what constitutes an entrepreneur.

Since the mid-nineties, (really the mid-eighties), little substantial research has been focused on the entrepreneur (Carland, Carland & Stewart, 2000). While some of the fault of this deficiency can be contributed to entrepreneurial curriculums, or lack thereof (Hebert & Bass, 1995), or the lack of rigor in research (Jackson, Watts & Wright, 1993), much of the fault has to do with our refocus from the entrepreneur to entrepreneurial activity as advocated by Bygrave and Hofer (1991) and Gardner (1991).

The authors advocate that the entrepreneur is still a worthy subject of research, even though we may also follow the trail of entrepreneurial activity. In other words, both research venues may be fruitful for us. The authors offer an historical respective in an effort to stimulate discussion on the value of such an approach.

INTRODUCTION

The search for the source of dynamic entrepreneurial performance has much in common with hunting the Heffalump. The Heffalump is a large and rather important animal. He has been hunted by many individuals using various ingenious trapping devices, but no one so far has succeeded in capturing him. All who claim to have caught sight of him report that he is enormous, but they disagree on his particularities. Not having explored his current habitat with sufficient care, some hunters have used as bait their own favorite dishes and have then tried to persuade people that what they caught was a Heffalump. However, very few are convinced, and the search goes on (Kilby, 1971, 1).

The above statement made by Peter Kilby, borrowing a construct from A. A. Milne's Winnie-the-Pooh, is one of the most characteristic analogies ever made regarding the study of the entrepreneur. Unfortunately, even after three additional decades since the statement was made, the search continues. As we will see, in further consideration of the search for the Heffalump, a lot has

been "observed" but not much is fully known or understood. We do know more about the Heffalump than Milne originally presented.

For example, based on folk lyric, the Heffalump has three ears. He should surely be easy to spot. And, he is enormous, measuring 14 feet from ear to ear. Testimony is that he is deaf even with extra auditory equipment. These characteristics should surely make him easy to find - as should be equally true with the entrepreneur.

And then, there are other characteristics (discovered at different times). For example, independent observers have noted that his eyes are red, his nose is green and his tail is turquoise blue. Surely, if we saw this fellow, we would recognize him. One observer has even reported that the Heffalump has been known to audibly snarf. Surely we can recognize him by the sound.

The hunt has even (allegedly) isolated the location of the Heffalump. He is known to reside in the land of Vildesmeer, which is not too far from Fleeglestown and a bit further from Glarf. With all that help, surely the Heffalump could be found. Alas, he hasn't. Not anymore than the entrepreneur?

One researcher even went so far as to stake a professional career on the sighting of a Heffalump, stating that if the evidence presented was not finally accepted, he would be content to become a bingle.

More seriously (directly) a major dilemma faced by researchers can be drawn from another observation made by G.L.S. Shackle in *The Entrepreneur*:

> *The entrepreneur is a maker of history, but his guide in making it is his judgment of possibilities and not a calculation of certainties. (Hebert & Link, 1982, viii)*

This statement draws attention to two salient points regarding any study of entrepreneurs. First, the importance of the entrepreneur should never be ignored when exploring economic development. Second, any study will be obviously inhibited by the entrepreneur's use of non-quantifiable methods of accomplishing tasks-judgment. What this implies is that many of the activities of the entrepreneur will remain a vast terra incognita due to the intuitive reactions to opportunities that he may make in lieu of logical business decisions. Furthermore, the quote highlights the difficulty of separating what the entrepreneur is from what the entrepreneur does.

PROBLEM/PURPOSE

Current entrepreneurial literature lacks consensus regarding the definition (the identity) of the entrepreneur (Wortman, 1987; Carland, Carland & Stewart, 2000). In this paper, the authors set out to trace the evolution of thought about the entrepreneur and entrepreneurial activity through several stages of development. A somewhat parallel approach to that of Wren's (1987) paradigm for the study of the development of management thought will be used. Wren's stages, which tend to follow major changes in economic, social and political doctrines include: (1) pre-classical stage; (2) classical stage; (3) neo-classical stage; (4) the modern stage; and, (5) current impetus.

Many attempts have been made to classify the entrepreneur and entrepreneurial activity. As we shall see, the long history of the discussion has resulted in quite a few perspectives, sometimes apparently contradictory, on entrepreneurs and their importance to the economic process. This paper is an attempt to summarize those perspectives and, hopefully, help to clarify our collective points of view. The entrepreneur is, by all accounts, important to economic theory and practice, but just isn't well understood. The paper is offered as a tentative framework for the discussion of this very important phenomenon - the Heffalump, oops! the Entrepreneur.

One is reminded of the efforts of several blind men to describe an elephant. Perspective was important in that effort too. Only by stepping back and looking at the whole thing do we really appreciate what it is we are looking at.

PRE-CLASSICAL

Surely, none of us doubts that the entrepreneur has been among us as long as economic activity - long before the corporation was even imagined. Obviously the term is new, but the person and activities are as old as history. Early writers who spoke of the phenomenon that we now call entrepreneur were not very complimentary. Aristotle, along with many other Greek observers, held disdain for the entrepreneur based on their support of the zero-sum economic activity theory. This theory held that gain obtained by one individual had to be the result of another man's loss (Aristotle, 1924). The fact that merchants were not allowed citizenship in Greece during this period (Wren, 1987) was probably an outcome of the "constant wealth" or zero-sum philosophy.

Merchants often put their possessions and their lives on the line for sizable potential rewards. Interestingly, while the Greeks seemed to view wealth as a fixed commodity, they did not necessarily view any given city-state's wealth as fixed. Wealth redistribution from other peoples seems to have been okay. Military leaders of this period participated in campaigns with the hope that their risk would lead to substantial economic benefits (Hebert & Link, 1982). These benefits amounted to a forced redistribution from one economy to another. We can almost think of their activities as being economic. Both kinds of persons obviously expected non zero-sum returns for their risk taking. They weren't called entrepreneurs, but these "adventurers" existed nonetheless. The difference in attitude toward them seems to have lain in an inherent belief that wealth redistribution was okay and might be in the national best interest, while wealth creation was not really a viable concept. Alas, Vildesmeer was too far away and the Heffalump wasn't really perceived even if he passed by.

Religious philosophy often represented another inhibiting factor toward entrepreneurial activity during this period. These philosophies also precluded observation and discussion of economic risk-taking. Weber (1958) postulated that:

> *...the ascetic character of [the Catholic Church's] highest ideals must have brought up its adherents to a greater indifference toward the good things of this world. (p. 40)*

By analogy, the Heffalump wasn't really even allowed to pass by. Wealth was often viewed as an evil thing. So, the Heffalump with his wares might even be shot on sight since he didn't fit into the environment. It was not until the mid-eighteenth century that the term entrepreneur and the economic impact of the entrepreneurial activity began to be seriously noticed.

CLASSICAL STAGE

French School

Richard Cantillon (1680-1734), a French banker and businessman, in his Essai sur la nature du commerce en general, was among the first to recognize the role of the entrepreneur in economic development (Hebert & Link, 1982). Cantillon's theory of the entrepreneurial individual was someone (from any economic class) that had the foresight and desire to assume risk and take the initiative to attempt to make a profit in an uncertain world. This is the essence of the first formal definition of the entrepreneur. Cantillon's remarkably familiar view of the entrepreneur went on to stress that this individual would provide a good at the right place, at the right time and at the right price to satisfy a consumer's need (Spengler, 1960). He further argued that the risk involved was not only monetary, but also one associated with opportunity costs of time and expertise (Kanbur, 1980).

Numerous other French economists closed ranks with Cantillon in recognizing the specific existence of the entrepreneur. Three of his compatriots wrote of the entrepreneur but really added nothing to the definition. Specifically, Francois Quesnay (1694-1774), Nicolos Baudeau (1730-1792, and Anne-Robert Jacques Turgot (1727-1781) recognized the role of the agricultural entrepreneur (appropriate to the economy of the day), but only Turgot saw implications outside agrarian activity. These French economists saw the entrepreneur as intelligent, wealthy, and a profit seeker (Hebert & Link, 1982).

A little later, another Frenchman-Jean-Baptiste Say (1767-1832) provided notable advancement to economic thought. Say stipulated that the entrepreneur represented the catalyst for the development of products- he was a "superior laborer" (Hoselitz, 1960). Say's work did not, in itself, provide for significant advancement in entrepreneurial thought as that was not his focus. He did not feature "a force for dynamic economic change". However, kernels for advancement of economic speculation on the entrepreneur were now in place.

English School

At the same time that French economic thought was making a place for specific inclusion of the entrepreneur, the English School had its own theorists who began to notice our risk-taker. The best known in the field was Adam Smith (1723-1790). Smith failed to specifically separate the entrepreneur from various other kinds of "industrious people." However, he did offer numerous indirect references to the entrepreneur's role in the economy. For example, Smith recognized innovation as a hallmark of professional activity (Hebert & Link, 1982).

Another Englishman, Jeremy Bentham (1748-1832), took Smith's philosophy one step further. He categorized the entrepreneur as a "contractor" and one who, through invention, would prosper (Bentham, 1962).

German School

Another country offering a wealth of entrepreneurial pre-theorists, at about the same time, was Germany. J.H. von Thunen (1783-1850) and H.K. von Mangoldt (1824-1868) were two of the more prominent German economists who began to consider entrepreneurs and their contributions to economic wealth. Von Thunen was best known for his description of gain being awarded based on risk involved and ingenuity used (Kanbur, 1980). Mangoldt, on the other hand, recognized innovation as being an important factor of enterprise, yet did not see this as a method of dynamic growth (Hebert &Link, 1982).

The World

The western world did not hold a monopoly on observing entrepreneurial activity during this period. For example, even though specific identities of Japanese economic theorists of the era are not known, we can identify a strong entrepreneurial spirit in Japan's sphere of influence.

"The economic responsiveness demonstrated by these [Japanese] merchants as entrepreneurs leaves little doubt that they could respond to the economic opportunities [as] successfully [as] their European counterparts" (Yamamura, 1973, 182).

It is not surprising, considering the economic climate of the period associated with the industrial revolution, along with a noticeable "shrinking" of the world of commerce that the entrepreneur began to receive so much attention by economic theorists. Dynamic growth was occurring in much of the world (in contrast to the zero-sum game) and an explanation for this phenomenon was needed.

Economic theorists had begun to lay the groundwork for explaining entrepreneurial impact on economic growth. However, consensus on the identity of the entrepreneur or entrepreneurial roles was not even a target, much less an achievement for these thinkers. The entrepreneur was seen variously as: a risk taker (Cantillon, Baudeau, Thunen, Bentham and Mangoldt); a superior laborer (Say & Smith); a highly intelligent person (Cantillon, Quesnay, Baudeau, and Turgot); and, as an innovator (Smith, Bentham, and Mangoldt). This was the period in which the industrial revolution reached its full momentum. This obviously colored the sense of the entrepreneur that emerged during that time. Would scholars of subsequent periods (after 1870) offer any better insights?

NEO-CLASSICAL STAGE

As the global economy flourished, theories purporting to identify the entrepreneur abounded. Although the scope of this paper does not allow for an extensive discussion of each, a few eminent scholars do deserve particular consideration.

Table 1: Pre-Classical & Classical Perspective on the Entrepreneur	
Column 1	Column 2
Disdain	Greeks
Semi-heretical	Religious authorities
Superior laborer, force for dynamic and economic change, risk taker	French School
Industrious people, contractor, inventor	English School
Economically responsive	Japanese

Max Weber

The full-blown emergence and explication of the protestant work ethic marked the first major transitional period in the development of and specific interest in entrepreneurial thought. Max Weber and his book The Protestant Ethic and the Spirit of Capitalism should probably be considered a watershed in this development. In addition to emphasizing the importance of economic expansion associated with the movement, Weber offered an explanation and rationale for the existence of two entrepreneurial types.

There was first, that type of entrepreneur that epitomized the protestant ethic as was purposed by the traditional Calvinist:

> *The form of organization was in every respect capitalistic; ...But it was traditionalistic business; if one considers the spirit which animated the [businessman]: the traditional role of profit, the traditional manner of regulating the relationships with labour, and essentially traditional circle of customers and the manner of attracting new ones. All of these dominated the ...business and were at the basis of the ethos of this group of businessmen...The ideal type of capitalistic entrepreneur...avoids ostentation and unnecessary expenditures,...[is] embarrassed by...social recognition, ...and gets nothing out of his wealth except having done his job well (Weber, 1958, pp. 67-71).*

It was, however, his recognition of a second type of entrepreneur for which Weber gained recognition as a philosopher in the field of entrepreneurship. As will be discussed in more detail in conjunction with consideration of Schumpeter's contributions, it was Weber's "charismatic leader" that served as the vehicle for explaining certain significant changes that were occurring in the economy (Carlin, 1956). Weber described this leader as follows:

> *What happened [to disrupt the traditional state of the economy was] ...some young man...would change his marketing methods...would take details into his own hands, would personally solicit customers...would introduce low prices (Weber, 1958, 67-68)*

Weber, at this point, tended to support the negative connotation that was so often projected onto this second type of entrepreneur. He went on to suggest that:

> *[The entrepreneur's] entry on the scene was not generally peaceful. A flood of mistrust, sometimes hatred, above all of more indignation, regularly opposed itself to the first innovator (p. 69).*

Other Neo-classical Scholars

Although many other truly prominent individual scholars lent their names to the field of entrepreneurial thought during this period, little substance in identifying the exact nature or purpose of the entrepreneur was developed. Generally, the entrepreneur, although recognized, was just a pattern in the wallpaper of the economy. The emphasis was on the emergence of big business. Certainly no consensus as to the "who" and "what" of entrepreneurial phenomena was arrived at amongst these giants in economic thought.

The British School was represented by the likes of Alfred Marshall, Francis Y. Edgeworth, and John Maynard Keynes. Marshall simply echoed the sentiment of the French economist Say that the entrepreneur was a "superior laborer." He did, however, stress that the entrepreneur would, of necessity, exhibit "leadership abilities" (Marshall, 1961). Edgeworth's view of the entrepreneur added little to the observations made by Marshall. Keynes followed the Marshallian doctrine of superior laborer, yet espoused the original concept of "animal spirits"-or a spontaneous urge to action (Keynes, 1964). There is a hint of "inspiration added to motivation" in his thinking.

As the American economy blossomed, so did thinking among entrepreneurship scholars. Among the most widely read and respected were Francis Walker (1840-1897), Fredrick Hawley (1843-1929), John Bates Clark (1847-1938), and Frank Knight (1885-1972). Walker, who actually preceded Marshall, stressed the elements of decision-making and leadership (Hebert & Link, 1982). Hawley reiterated the well-accepted doctrine from Cantillon of risk taker, but placed even more emphasis on the importance of the individual to economic growth (Hawley, 1892). Clark seems to have disagreed with the notion of entrepreneur as "risk-taker" and described the entrepreneur as more of a coordinator of economic activity (Clark, 1907). Knight, to whom risk meant nothing if the uncertainty could be insured, provided two major contributions to entrepreneurial thought:

> *First, he [Knight] provided a very useful emphasis on the distinction between insurable risks and non-insurable uncertainty. Second, he advanced a theory of profit that related this non-insurable uncertainty on the one hand to rapid economic change and on the other to differences in entrepreneurial ability. (Hebert & Link, 1982, 69)*

Joseph Schumpeter

Undoubtedly, the most influential scholar in the area of entrepreneurial thought during the Neo-classical period was Joseph A. Schumpeter (1883-1950). As alluded to previously,

Schumpeter's entrepreneur was Weber's charismatic leader. To Schumpeter, the entrepreneur was an innovator and was directly responsible for dynamic change in the economy (Carlin, 1956).

Schumpeter was perhaps the first theorist to view the entrepreneur from a multi-faceted perspective. Our subject was no simple phenomenon to him. As a consequence of this more holistic point of view, Schumpeter challenged some notions that seem to have been tacitly, but well, accepted in his time. Remember that the emphasis on the entrepreneur had been developing over a two hundred year period. While Weber's work provided a watershed, Schumpeter began to describe the new recognition and theory of the reality.

Among his more controversial ideas was the proposition that the entrepreneur was not, per se, a risk taker. Although this notion continues to receive considerable debate, some observations of other ideas espoused by Schumpeter help to explain this apparent departure from the "obvious": the idea that Schumpeter's entrepreneur was so superior in ability that there was no risk in failure; or that it was the capitalist, not the entrepreneur, that was at risk (even though the entrepreneur might be a capitalist) (Kanbur, 1980).

The most unique feature ascribed by Schumpeter to the entrepreneur was his "intuitive nature":

> *Here the success of everything depends on intuition, the capacity of seeing things in a way which afterwards proves to be true, even though it cannot be established at the moment, and of grasping the essential fact, discarding the unnecessary and, even though one can give no account of the principles by which this is done (Schumpeter, 1934, 85).*

Before entering the Modern era of entrepreneurial thought, it is important to gather those characteristics of the entrepreneur that were in vogue at the end of the Neo-classical period.

Table 2: Neo-Classical Entrepreneurial Traits

Trait	Researcher
Risk taker	Hawley
Superior (charismatic) leader	Marshal, Edgeworth, Keynes, Waler, Weber
Not a risk taker	Clark, Knight, Schumpeter
Intuitive	Schumpeter
Spontaneous actor	Keynes
Superior Laborer	Weber, Say

MODERN ERA

As the United States entered a period of economic depression and then World War II, thinking and writing about entrepreneurs declined. What was needed was a large and well-organized

economic system to help the nation through those very trying economic times. Entrepreneurs and entrepreneurial activity had not disappeared - it's just that their relative priority as an area of investigation had been reduced by larger or more pressing matters.

When the economy recovered from these back-to-back "big hits", the entrepreneur was still there. Modern research was very much shaped by the "social-man" philosophy that had come out of the long period of upheaval in thought. The importance of the individual had, understandably, decreased during that period. In addition, research into phenomena like the entrepreneur had moved from a purely economic perspective to that of a multidisciplinary perspective.

Social-Man Approach

The 1950s and 1960s ushered in a period of affiliation in the place of earlier individualism. This general social-philosophy influenced research in the period. As a consequence, the emphasis of most researchers during this period was that of group interaction rather than personal accomplishments. Obviously, this social-philosophy was a bit counter to what had occurred earlier in thinking about entrepreneurs. Hence, the shift from Neo-classical entrepreneurial thought to early Modern entrepreneurial thought was significant. This new emphasis can be seen in the writings of two prominent theorists from the early part of the period:

> *...for, only in a very small firm can a single individual perform all of Marshall's entrepreneurial functions. In most enterprises, a hierarchy of individuals is required to perform them. Thus, the entrepreneur is in essence an organization. (Harbison, 1956, 364)*

There is no theoretical reason why important innovation in role behavior could not rise from inner-conditioning independently of all exogenous factors…The given innovations or superior ones usually seem to be in process of introduction by several executives. (Cochran, 1965 p. 28)

Harbison was not the only scholar to hold this view that stressed the organization and the individual's place in it. Strauss originally presented this sentiment of the firm as the entrepreneur in 1944 (Gartner, 1988).

Interdisciplinary Approach

Even as the prevailing social-philosophy of the era quickly gave way again to a much more individualistic tone, the emphasis on the entrepreneur as "social-man" quickly gave way to the entrepreneur as individual, as in earlier thought. Numerous researchers (in various disciplines) again found excitement in the entrepreneur as an object of study. The personal characteristics of the person who was the entrepreneur (what the Heffalump is) began to receive a lot of research attention. Therefore (as is apparent in Table 3 below), numerous possible traits of the entrepreneur were proposed and discussed.

Greater and lesser scientific rigor accompanied the various propositions and discussions thereof. Much of the research was based on an eclectic borrowing of ideas from a wide variety of disciplines. With all the foment implied by such an exciting time in the research, it should be no

surprise that consensus on the phenomenon of the entrepreneur never developed. Unfortunately, (as will be discussed shortly), this lack of a consensus may very well have shut the door for many researchers interested in furthering and enriching the study of the entrepreneur.

Table 3: Entrepreneurial Characteristics

Column 1	Column 2	Column 3
DATE	AUTHOR(S)	CHARACTERISTIC
1954	Sutton	Desire for responsibility
1959	Hartman	Source of formal authority
1961	McClelland	Need for achievement
1963	Davids	Ambition, independence, self-confidence
1964	Pickle	Drive, human relations skills
1971	Palmer	Risk taker
1973	Winter	Need for power
1974	Borland	Internal locus of control
1977	Gasse	Personal value orientation
1978	Timmons	Drive, moderate risk taker
1980	Sexton	Energetic

Source: Carland, Hoy, Bolton & Carland, 1984

CURRENT IMPETUS

As we have seen, the state of thinking on the entrepreneur is kind of "up-in-the-air". No theoretical consensus has developed. We're pretty sure we'll know one when we see it. We know, in fact, that we have seen them. But, the eyewitness accounts vary significantly dependent largely on the point of view of the observer. That's okay because the observer has no particular reason to have any particular point of view. The discussion reached a (probably desireable) state of flux and then it mostly shut down. This lack of a universally agreed upon framework has gained considerable attention since the discussion tapered off (Hoy, 1988; Carland, Hoy, Boulton & Carland, 1984; Wortman, 1987; d'Amboise & Muldowney, 1988; Hisrich, 1988).

The unfortunate reduction in the discussion that sort of left it unfinished has led some to suggest giving up the search for the Heffalump. Hisrich (1988), for example, proposed that a true scientific theory would (or could) never be developed, and if we continued the search, the

entrepreneurial discipline would lose respectability. Gartner (1988) suggested that we declare the existing findings as characteristic of "Everyman" and urged the field to discontinue the search.

It seems that after the 80's, researchers, indeed, gave up the search. We have become content to investigate activity rather than intent. What entrepreneurs do has become the focus and not what they are. At the end of that day, we'll know that the Heffalump hears poorly and that he occasionally snarfs loudly, but we still won't have seen one.

There are those who still want to actually see a Heffalump. Some are still vigorously searching (e.g. the Carlands). For those that continue to look for the land of Vildesmeer where the Heffalump lives-we applaud you and your work. Surely, in Vildesmeer, we will eventually be able to see the Heffalump. But we have to keep looking, even after we get to Vildesmeer.

IMPLICATIONS/CONCLUSIONS

As is often asked within our political circles-Are we better off now than we were thirty years ago-in terms of understanding entrepreneurial behavior? It is the belief of these authors, that the answer is no, not really. We agree that an elephant is not the same thing as a tree or a snake, but we haven't yet seen for sure what an elephant is.

We seem to have, for whatever reasons, given up on the difficult road. We have elected instead to pursue the downhill path -- the path of least resistance. A road more easily navigated, yet one that will surely lead to entrepreneurial research going the way of the dinosaur. Certainly, there is excitement to be found in describing the activities, and their effects, of entrepreneurs and those things are much more easily observed. But if that is all we ever get from the investigation, we will have missed a wonderful opportunity to add to true understanding of why that all happens.

It will not be easy, this search for the mythical creature in a place without maps, but we must pick up the torch and begin anew our search for the Heffalump. If we do not, not only will our understanding of entrepreneurial activity be severely limited, but we will also lose those potential new researchers coming out of doctoral programs that have new curiosities and considerably more energy to contribute to the search. If we don't continue the search for the Heffalump now, who'll take it up later - and when? Will we never see him? Will we only hear the stories and miss the joys of the hunt?

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THE IMPACT OF STRATEGY AND INDUSTRY STRUCTURE ON THE LINK BETWEEN THE ENTREPRENEUR AND VENTURE PERFORMANCE

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ABSTRACT

For many years, entrepreneurship research has pursued in vain the elusive link between the entrepreneur's attributes and venture performance (VP). During this same period, however, the field of entrepreneurship has successfully borrowed from the strategy paradigm in confirming that strategy and industry structure are determinants of VP. This study of 121 ventures demonstrates that the introduction of venture strategy and industry structure as moderators of entrepreneurial skills is instrumental in unlocking the attribute-performance relationship. With this use of strategy and structure as contingency variables, a solid connection can be demonstrated between entrepreneurial abilities and the venture's performance.

INTRODUCTION

As the strategy paradigm has developed since the 1960s, a growing body of knowledge has indicated that both business strategy and industry structure are causal precursors to business performance (Chandler, 1962; Schendel & Hofer, 1979; Porter, 1980). As the field of entrepreneurship has developed over this same period, it has borrowed these concepts from the strategy paradigm. Specifically, empirical studies in entrepreneurship have shown that industry structure and new venture strategy are important determinants of venture performance (Sandberg, 1986; Cooper, Willard & Woo, 1986; McDougall, 1987).

During the same time span that this progress has taken place, the field of entrepreneurship research has been struggling unsuccessfully to secure a position for the entrepreneur within the causal framework of venture performance (VP). While it is generally recognized that the entrepreneur is the architect of a venture's strategy (Cooper, 1979; Vesper, 1990), both entrepreneurship theory and the wisdom of the venture capitalists hold that the single most important factor in new venture success is the entrepreneur him/herself, quite apart from plans and strategies (MacMillan, Seigel & Narasimha, 1985; Sandberg, 1986). However, substantial empirical work in the field of entrepreneurship (Brockhaus, 1980; Hull, Bosley & Udell, 1983; Sandberg, 1986; Begley & Boyd, 1987) has failed to demonstrate a convincing causal linkage between attributes of the entrepreneur and performance of the venture.

Reviews of this literature investigating the entrepreneurial attribute-performance relationship show that the greatest proportion of these studies concentrate on the entrepreneur's personality traits

or experience. Hollenbeck and Whitener (1988, 83) provided a clue to reasons for the uncertain results of the personality trait studies when they noted that the causal link between these traits and task performance is mediated by motivation and moderated by abilities, thus setting personality traits in a distal relationship to performance. Likewise Maier (1965, 286 & 480) offers evidence of a similar problem plaguing the experience studies when he notes that experience is moderated by aptitude and mediated by abilities in their causal link with performance. Thus the work of both Maier (1965) and Hollenbeck and Whitener (1988) suggests that entrepreneurship performance research would be well advised to investigate skills rather than experience or personality traits. (In line with previous strategic management literature, we use the word "skills" rather than "abilities" throughout the remainder of our paper. Thus personality traits are mediated by motivation and moderated by "skills" in the determination of performance.)

The strategy literature has arrived at much the same conclusion. The strengthening over time of the strategy paradigm has been accompanied by a series of works in the strategy implementation literature linking managerial performance with managerial skills (Mintzberg, 1973; Katz, 1974; Rotter, 1982). Beginning with Wright (1974), strategic management scholars have postulated contingency linkages between general managerial skills and business performance (Tichy, Fombrun & Devanna, 1982; Leontiades, 1982; Szilagyi & Schweiger, 1984). Most of this literature has suggested that skills are moderated by strategy and industry structure in effecting performance, a conclusion hardly surprising given the foundations of this literature. Although attempts have been made to infuse this particular strategy literature into the field of entrepreneurship (Sandberg & Hofer, 1987), entrepreneurship researchers have generally avoided the topic. One major exception is a special theory edition of the *Journal of Business Venturing* that developed a comprehensive theoretical model of the effects of entrepreneurial characteristics on VP (see Herron & Robinson, 1993). It provides a useful, expanded theoretical background and impetus for the research reported herein.

The above literature supporting the importance of skills leads to our fundamental research question: Can the skills of entrepreneurs be shown to be associated with VP?

CLASSIFYING ENTREPRENEURIAL SKILLS

Since little attention has been paid in the entrepreneurship literature to studying or classifying skills, it is reasonable to begin construction of an entrepreneurial skills classification by studying the strategic implementation literature. Much of this management skills literature is applicable to the field of entrepreneurship since, while not all managers are entrepreneurs, it is arguable that all entrepreneurs are managers (Schumpeter, 1934; Drucker, 1966). Our skills classification uses this and other literature reviewed in Herron and Robinson (1993).

Katz (1974) originated one of the first typologies of managerial skills, a scheme which was subsequently used as a base by Szilagyi & Schweiger in their 1984 model on matching managers to strategies. Since managerial skills can be subdivided in many ways and viewed from many angles, we prefer to use a typology rather than a list of skills. This is because typologies attempt to be all inclusive and thus avoid overlooking any particular skill. Katz divided managerial skills into three basic categories: technical skills, human skills and conceptual skills. For Katz, technical skills

imply knowledge and proficiency in a specific kind of activity; human skill is the ability to interface effectively with others; conceptual skill concerns the ability to envision the enterprise as an integrated, open system.

Szilagyi and Schweiger (1984) break Katz' skill typology down into finer classifications. They see the area of technical skills as further divided into three subclassifications: functional technical skills, business skills and industry skills. Functional technical skills connote knowledge and proficiency concerning products, services, and processes (we will refer to them hereafter as product skills); business skills refer to understanding and competence in dealing with organizational questions; and industry skills involve understanding and proficiency in maneuvering within an industry. Szilagyi and Schweiger also see Katz' human skills as divided into two subcategories: leadership skills and networking skills. Leadership skills denote proficiency in positively affecting behavior of others while networking skill involves the ability to create and effectively utilize human networks in obtaining information.

Szilagyi and Schweiger (1984) refer to Katz' conceptual skills as administrative skills and include within them a variety of abilities involved in understanding and controlling the enterprise as a whole, including innovative enterprise behavior. It is with regard to this set of skills that entrepreneurs become distinct from other managers. Thus it appears that Katz' conceptual skills category (Szilagyi and Schweiger's administrative skills) might be further subdivided into two skills areas that we will call executive and entrepreneurial. Entrepreneurial skills refer to the ability to discover opportunities for profitable reallocation of resources to new endeavors, while executive skills refer to proficiency and knowledge in planning and executing these reallocations.

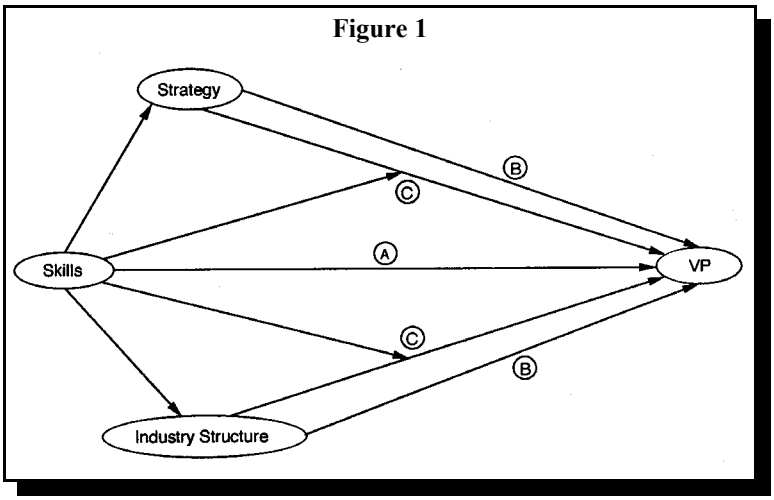
These seven skill classes (product, business, industry, leadership, networking, executive and entrepreneurial) thus compose a literature-supported and face-valid typology of skills used by entrepreneurs in the pursuit of successful performance.

THE EFFECTS OF STRATEGY AND INDUSTRY STRUCTURE

Given our skills typology, we constructed a model of the interaction of these skills with strategy and industry structure and the effects of these elements on VP (see Figure 1). Link A in Figure 1 represents the simplest possible causal relationship between skills and VP wherein skills have simple effects upon VP. But in fact, the seven skill classes posed above should affect VP in two additional, more complex ways. In the first way, the skills are used by entrepreneurs to select opportunities and to devise plans (Child, 1972). Thus the skills would affect the choice of both industry environment and venture strategy and we have shown this connection in Figure 1 without a label since we will not directly test this effect. Strategy and industry structure thus devised would in turn affect VP directly (Porter, 1980; Vesper, 1990) and we have shown these effects as Links B. In the second way, given strategy and industry structure, the skills would serve the entrepreneur as tools both of strategy implementation (Szilagyi & Schweiger, 1984) and of subsequent modification of strategy and industry structure (Vesper, 1990) given VP results. It is these second effects of skills that are paramount to the venture capitalists in their belief that the entrepreneur is the most important factor in new venture success even when plans and strategies are considered as separate factors (MacMillan, Seigel & Narasimha, 1985). Further, it is these effects of skills which interact with

strategy and industry structure to affect VP (Leontiades, 1982; Szilagyi & Schweiger, 1984; Sandberg & Hofer, 1987). Since skills are task-specific (Maier, 1965; Mintzberg, 1973) and managerial tasks are specific to strategy and industry structure (Rotter, 1982; Porter, 1985), we should expect the effects of skills on performance to be moderated by strategy and industry structure. Skills should thus be considered interactively with strategy and industry structure because their efficacy in determining VP should depend upon the milieu within which the skills are exercised. We have shown these effects as Links C. (The implicit feedback loop from VP to both strategy and industry structure has not been shown both for visual simplification and because its analysis is beyond the scope of this paper.)

Figure 1



Given our model in Figure 1, we can advance the following propositions:

Proposition 1:	*Skills of entrepreneurs and the interactions of those skills with strategy and industry structure will serve as significant predictors of VP given strategy and industry structure.*
Proposition 2:	*The interactions of entrepreneurial skills with strategy and industry structure will serve as significant predictors of VP given strategy, industry structure, and the skills themselves.*

THE SAMPLE

The sample for this study consisted of independent, nonfranchised new ventures founded within ten years or less whose current CEO was the original founder. The sample was designed around two major criteria: maximum variation and convenience. Since the propositions and their theoretical development were neither firm nor industry specific, it was desirable to concentrate upon achieving a sample with maximum variation across strategy types and industry environments used to operationalize the model. Only in this way could the model be fully tested and external validity

enhanced. Second, since the amount of information needed from each firm was considerable and the desirable sample size large (over 100), it was paramount to chose a population for sampling which was easily accessible and prone to cooperate with the research.

The initial sampling population was recently founded manufacturing ventures in South Carolina and Georgia all of whose names, addresses, phone numbers, CEO's, founding dates, SCI codes, and other useful information were obtainable through the auspices of the respective development boards of both states. This population consisted of 547 firms, 225 of which were in South Carolina and the balance in Georgia. To this population was added another population of 82 national manufacturing firms who had cooperated in a recent new venture study accessible to the researchers and about whom the appropriate information was known. Further, since it was undesirable to restrict the sample to manufacturing firms (even though their variance across strategies and industry situations was appropriately large), a further sample of non-manufacturing (i.e. retail and service) firms was sought on an ad hoc basis, largely from personal contacts or through faculty and students. A list of 153 businesses believed to meet the criteria of this research (firms founded within the last ten years whose current CEO was the original founder) were compiled for this subsample from personal, faculty, and student contacts.

Questionnaire responses were solicited from the founder CEOs. Telephone follow-up was used to increase response rates, which are detailed in Table 1 below.

Table 1: Subsample Response Rates

Group	Population Surveyed	Respondents	Response Rate	Usable Questionnaires*
South Carolina Manufacturers	225	61	27%	45
Georgia Manufacturers	332	46	14%	33
National Manufacturers	82	21	25%	11
Non-Manufacturers	153	56	37%	32
TOTAL	792	184	23%	121

* Questionnaires were unusable either when they did not fit the sample criterion or when data used in this study was missing.

OPERATIONALIZATION OF MEASURES

Strategy

In line with Venkatraman and Grant's (1986) proposal that strategy is a multidimensional construct, three distinct constructs are used together in this research to represent strategy. Numerous studies have utilized multidimensional strategy constructs (Galbraith & Schendel, 1983; Dess & Davis, 1984; Robinson & Pearce, 1988). Following a similar approach in a new venture setting, Robinson, McDougall and Herron (1988) employed a multi-item measure and derived a two

dimensional new venture strategy typology: aggressiveness of growth orientation and breadth of strategic scope. Discriminant analysis of the strategies of parented as well as non-parented new ventures were found to "fit" this two dimensional framework.

Our study uses aggressiveness of growth orientation and breadth of scope as two of its strategy constructs. These two constructs parallel elements associated with two of the traditional generic business substrategies, namely financial and competitive substrategies respectively (Hofer & Schendel, 1978). However, scope represents only one element of competitive substrategy while neglecting the other: competitive advantage (Porter, 1980, 1985). Thus to capture the competitive advantage dimension of new venture strategies, a third strategy dimension was added to our study: the construct of Vesper (1990) entitled "main competitive entry wedge". Vesper (1990) defines this construct as: " ...A strategic competitive advantage for breaking into the established pattern of commercial activity". This is a measure of whether the firm is entering the market with a totally new product or service, versus entering using a near-exact replica of the product or service of the competition with minor variations (Vesper's franchise entry has been ignored in this study).

Aggressiveness of Growth

The aggressiveness of growth construct was operationalized combining three items:

1	percent projected asset growth over the next three years,
2	percent projected employment growth over the next three years, and
3	an overall growth orientation measure represented by a 10 point Likert scale anchored at both ends.

Scope

In operationalizing the scope construct, it was recognized that there are three subdimensions of primary importance to consider: those of geographic scope, product scope, and market segment scope (Porter, 1980). Within an industry, it is possible for any given firm to vary its scope by being more or less concentrated on each of these three subdimensions.

We constructed three overall measures of scope. Our first overall scope measure was constructed by adding together three standardized Likert scales that represented geographic scope, product scope, and market scope respectively. Our second overall scope measure was similarly constructed using three different subdimensional measures. Our third overall scope measure was a single, standardized Likert scale.

Entry Wedge

Entry wedge was operationalized using as our measure a single, six point descriptive scale anchored at each point by a thorough statement characterizing one form of entry strategy (see Table

2). This scale was devised from studying Vesper (1990) and was agreed upon by a panel of three active research professors trained in both business strategy and entrepreneurship.

Industry Structure

Two constructs were used in this study to represent industry structure: Stage of the industry life cycle and product homogeneity.

Table 2: Entry Wedge Scale	
1	Our product or service is not at all new to the market we are serving, and prices will be our main method of competition.
2	Our product or service is not at all new to the market we are serving, but demand is great enough that we will have about the same prices as competition.
3	Our product or service is not at all new to the market we are serving, but it will be marketed or distributed with significant non-price differences from those of our competition (our prices may or may not be lower).
4	Our product or service has aspects which are new and/or different to the market we are serving.
5	Nothing else like our product or service is currently being sold in the market we are serving.
6	Our product or service is totally new and to our knowledge has never been offered before in any market.

Stage of Industry Life Cycle

The strategic implementation literature which has examined matching managers to strategy and/or industry structure has considered stage of the product or industry life cycle to be one of the most relevant dimensions of industry structure for that purpose (Wright, 1974; Kerr, 1982; Leontiades, 1982). Likewise, the entrepreneurship literature has often considered product or industry life cycle as a key dimension associated with VP (Sandberg, 1986; Hofer & Sandberg, 1987; Vesper, 1990). Porter (1980) recognizes the importance of industry life cycle as a key industry structure dimension while also acknowledging the difficulty of knowing the exact stage of the industry life cycle or even its shape. Based on this rich precedent in the literature, the stage of industry life cycle was used as one key dimension of industry structure in this study.

As a proxy for the relevant content of industry life cycle, we used one four point Likert scale with each item anchored to measure whether sales growth in the industry was increasing rapidly (> 7% per year), increasing slowly (< 7% per year), remaining steady, or declining.

Product Homogeneity

A second dimension used to characterize industry structure was the relative homogeneity of products versus comparative product heterogeneity within the industry. This dimension has been characterized by several management theorists as important to the type of competition which takes

place within an industry (Porter, 1980; Gupta, 1984; Sandberg, 1986) and thus may be expected to influence the type of entrepreneurial and managerial skills more likely to be associated with success in the industry.

This study used three single-item, three-point, fully anchored Likert scales to operationalize product homogeneity. Each scale queried whether a non-product facet is a point of minor, significant, or major competition within the industry. The three facets of competition queried were post-sales service, personal relations with the sales personnel, and price. These three items may be expected to indicate homogeneity within an industry (Porter, 1980; Sandberg, 1986).

Entrepreneurial Skills

A 10-point Likert scales was used to operationalize each of the seven skills of entrepreneurs as shown in Table 3 below.

Table 3: Skill Measures

My skill in the detailed design of our products/services:	Not effective at all Extremely effective < 1 2 3 4 5 6 7 8 9 10 >
My skill in evaluating the various functions of my organization:	
My skill in understanding my industry and the implications of its trends and changes:	
My skill in motivating and influencing the behavior of my employees:	
My skill in creating relations with and influencing important people outside my organization:	
My skill in planning and administrating my business' activities:	
My skill in discovering opportunities to profitably change my business:	

Performance

Venture performance was operationalized using a multi-item, subjective scale involving Likert-type items modeled after those validated by Gupta and Govindarajan (1984). The reasons for using a subjective instead of an objective scale were numerous. First, financial figures are often very misleading for young businesses since their plans may call for several periods of losses while they build market share or develop products. Second, the performance measures in this study must be flexible enough to compare businesses across modest age differences since the sampled populations ranged from 1 to 9 years of age. Equally successful businesses at the extreme ends of this range will have very different financial pictures even when in the same industry and competing in the same fashion. Third, the performance measures involved must allow for comparisons across industries and industry types since the sample is heterogeneous by design. objective measures would be industry-biased. Fourth, the subject firms in this study are closely held. The financial goals of such

business can vary widely depending upon the tax status and individual goals of their owners. Fifth, financial figures from closely firms are both difficult to obtain and notoriously unreliable.

The performance measure is an index whose design is based upon the method of Gupta and Govinjarian (1984). Eight single-item goal measures (see Table 4) are first rated by the respondent on Likert-type scales with each scale ranging from "relatively unimportant" to "extremely important". The respondent then rates the attained performance of his firm against each of these goals on Likert-type scales with each scale ranging from "extremely dissatisfied " to "extremely satisfied". The index measure is then obtained by multiplying the importance rating of each item times its attainment rating and averaging these scores.

STATISTICAL ANALYSIS

The research propositions were tested by applying the general linear test to multiple regression equations using the variables and skill interactions discussed. There are, of course, numerous forms which the nature of an interaction might take (Schoonhoven, 1981; Sharma, Durand & Gur-Aire, 1981). For purposes of this research, the nature of the interactive form chosen was multiplicative. In the multiplicative model, one assumes that effectiveness is most likely when two factors are both present but less likely when either is absent (Schoonhoven, 1981), and this is the type of interaction that the literature implies between skills and strategy and industry structure (Leontiades, 1982; Gupta, 1984).

Table 4: Performance Index

Goal	Level of satisfaction with performance against goal	x Importance of Goal =	Goal Index
Sales growth rate	1 to 7	1 to 7	1 to 49
Market share	1 to 7	1 to 7	1 to 49
Cash flow from operations	1 to 7	1 to 7	1 to 49
Return on investments	1 to 7	1 to 7	1 to 49
Market valuation of business	1 to 7	1 to 7	1 to 49
Company stability	1 to 7	1 to 7	1 to 49
Fostering an entrepreneurial climate	1 to 7	1 to 7	1 to 49
Harvest/exit readiness	1 to 7	1 to 7	1 to 49
Total Goal Index			1 to 343

Proposition 1

The general linear test was used to check for the significance of the skill terms given the strategy and industry structure terms (Neter, Wasserman & Kutner, 1985). This test measures the

significance of an increase in R^2 obtained by adding a set of independent variables to an equation given a base set of independent variables already in the equation. When the seven skills and thirty-five skill interactions were together added to the performance regression with the three strategy and two industry structure variables already in the equation, the general linear test yielded $p < .10$ (see Table 5). The relatively large number of independent variables in the full equation poses no difficulty here since no inferences are being drawn about individual β weights and since there are 73 degrees of freedom available for the test. Thus Proposition 1 is supported.

Table 5: General Linear Test of Proposition 1

All Skills and Skills Interaction Variables					
Base equation	DF	SS	R^2	Adj R^2	P-value
Regression	5	7.25	.061	.02	.1969
Residual	115	111.54			
Total	120	118.79			
Full Equation					
Regression	47	58.37	.491	.164	.0589
Residual	73	60.43			
Total	120	118.79			
$F_{42,73} = ((58.37 - 7.25) / 42) / (60.43 / 73) = 1.47 (p < .10)$					
Improved Predictor Subset of Skills and Skills Interaction Variables					
Base equation	DF	SS	R^2	Adj R^2	P-value
Regression	5	7.25	.061	.02	.1969
Residual	115	111.54			
Total	120	118.79			
Full equation					
Regression	19	50.66	.426	.319	.0001
Residual	101	68.13			
Total	120	118.79			
$F_{14,101} =((50.66 - 7.25) / 14) / (68.13 / 101) = 4.60 \ (p < .0001)$					

The full equation of Proposition 1 explains about 16% of the variance in the population (Adjusted $R^2 = .164$). While this is statistically significant ($p < .10$), it is not of much practical significance and therefore suffers from much the same malady as many of the personality trait studies (Brockhaus, 1980; Hull, Bosley & Udell, 1983; Sandberg, 1986; Begley & Boyd, 1987). It is therefore instructive to ask whether skill terms are capable of explaining significant variance given strategy and industry structure. To explore this question, we "improved" the full equation by removing non-significant skill and skill-interaction terms while holding the original strategy and

industry structure terms in the equation. We used a backwards stepwise method to remove variables, eliminating at each stage the variable with the lowest "F-value to remove" (Neter, Wasserman & Kutner, 1985). Variables were removed by this method as long as the Adjusted R^2 continued to increase. The resultant "improved" equation explained roughly 30% more variance than did the base equation alone (see Table 7). Thus entrepreneurial skills are capable of explaining variance with practical significance as marginal predictors of VP given strategy and industry structure. Further, it may well be that the explained variance is understated since the number of terms in the full equation precluded us from using a "best subsets" algorithm (Neter, Wasserman & Kutner, 1985) to determine the "improved" equation.

Table 6: General Linear Test of Proposition 2

All Skills Interaction Variables					
Base equation	DF	SS	R^2	Adj R^2	P-value
Regression	12	22.37	.188	.098	.0234
Residual	108	96.42			
Total	120	118.79			
Full equation					
Regression	47	58.37	.491	.164	.0589
Residual	73	60.43			
Total	120	118.79			
$F_{35,73} = ((58.37 - 22.37) / 35) / (60.43 / 73) = 1.24$ (p is not significant at .10)					
Improved Subset of Skills Interaction Variables					
Base equation	DF	SS	R^2	Adj R^2	P-value
Regression	12	22.37	.188	.098	.0234
Residual	108	96.42			
Total	120	118.79			
Full equation					
Regression	22	50.35	.424	.295	.0001
Residual	98	68.44			
Total	120	118.79			
$F_{10, 98} = ((50.35 - 22.37) / 10) / (68.44 / 98) = 4.01$ ($p < .01$)					

Proposition 2

Proposition 2 was also tested using the general linear test. This time the base equation contained the seven skill terms as well as the five strategy and industry structure terms and the full

equation contained the interaction terms in addition. Here the general linear test yielded an F-value of 1.24 with a p-value not significant at the .10 level, a failure to support the proposition. However, when the "improved" equation was calculated holding in the twelve base terms, the general linear test provided support for the proposition with $p < .01$.

Additional Analysis

Having shown that skill-interactions with venture context are important to the prediction of VP, the natural progression of analysis would be to investigate the moderating effects of each interaction versus the terms composing that interaction. However, it is realized here on that multicollinearity plays a very significant part in masking these results.

For example, the separate moderated regression equations for several terms each implied that these terms had no significant effect over and above that of their constituent terms. However, when one combined moderated regression was run to determine the simultaneous effect of both, the combined effect was shown to be highly statistically significant. This was because the effects of multicollinearity between these terms caused their combined effects to be greater than the sum of their individual effects (Cohen & Cohen, 1975), in essence a form of interaction between the interaction terms themselves. Likewise, the effects of this collinearity caused one of the regression coefficients in the combined equation to become negative when they had both been individually positive in their separate regressions. This is because the coefficients in the combined equation represent the partial derivatives with respect to each variable, that is, the marginal change in performance due to one independent variable when the other independent variable is held constant, an unlikely event according to this data. The presence of extreme multicollinearity at this level of analysis suggests that isolating the performance impact of one interaction *while holding all others constant* is impractical because these interaction elements are so intertwined with one another that, in practice, changing one will change others.

Because of these findings of multicollinearity present within the interaction terms, individual moderated regression equations will not be shown since this would be a useless exercise both in terms of determining interaction importance and in terms of interpreting regression coefficients. Instead, we investigated all of the simple regressions of both skills and skill interactions. These regressions represent the multidimensional projection of the data onto one plane, and, as such, the direction of the regression coefficients are interpretable in a normative regard, all other variables not being actively manipulated.

The investigation of the simple regressions revealed three significant skills and nine significant skill interactions as shown in Table 7. All of the skills have positive coefficients as we would intuitively anticipate: simple possession of any of the skills should serve only to enhance performance and never to detract from it. The interactions, however, have some positive and some negative signs. Again this should be anticipated, since possession of various skills might become more or less effective as contingencies change. For example, the product skill becomes less effective as homogeneity increases. This makes sense since design skills enhance differentiation which in turn become more useful in a heterogeneous industry.

Table 7: Significant Simple Regressions of Performance on Skills and Skill Interactions				
Term	p-value	Adj R^2	Sign of β Coefficient	Confidence Interval
Product with industry homogeneity	p <= .0344	.029	-	<.05
Business	p <= .0084	.049	+	<.05
Business with entry wedge	p <= .0106	.046	+	<.05
Business with industry homogeneity	p <= .0607	.021	-	<.10
Industry	p <= .0026	.074	+	<.05
Industry with entry wedge	p <= .0034	.062	+	<.05
Industry with industry homogeneity	p <= .0253	.033	-	<.05
Leadership with industry homogeneity	p <= .0337	.029	-	<.05
Executive with industry homogeneity	p <= .0277	.032	-	<.05
Entrepreneurship	p <= .0169	.039	+	<.05
Entrepreneurship with entry wedge	p <= .0213	.036	+	<.05
Entrepreneurship with industry homogeneity	p <= .0177	.038	-	<.05

It is interesting to note that the business skill, the industry skill, and the entrepreneurial skill all become more important to success as the entry wedge becomes more unique. very likely this is because success or failure become more skill dependent as risk due to newness increases. Likewise, most of the skills have negative interactions with industry homogeneity, probably because many skills become relatively less important in homogenous industries than do other factors such as resource availability.

CONCLUSIONS

This study adds perspective on why previous research has been unable to confirm a link between entrepreneurial characteristics and VP. It shows that characteristics closer to VP in the causal chain than personality traits or demographics, skills in this instance, can be shown to predict VP. However, at least in the case of skills, the predictive ability of these closer characteristics is contingent upon contextual variables such as strategy and industry structure. And since the study suggests that such contingencies do play a large part in associating characteristics with VP, it should help lay to rest the notion that there is one and only one successful entrepreneurial personality (McClelland, 1965; Zaleznik & Kets de Vries, 1976).

The skills typology which was constructed and tested in this study is but one of many possible skills classifications. Nonetheless, it is a typology strongly rooted in the works of previous scholars and has proved valuable in operationalizing and understanding skills and there relation to VP. As may be seen from Table 7 above, six of the seven skills in the classification have proven to

be significantly associated with VP either directly or through interactions with context variables, and terms containing the seventh (networking) were present in the "improved" predictor equation for the model (see Table 5). Apparently, each and every skill in this skills classification has predictive impact on VP.

Most educators and trainers agree that skills can be learned. To the extent that this applies to entrepreneurial skills, this study implies that entrepreneurial performance can be enhanced through learning and experience, a finding that, if true, has great practical significance. While educational paradigms have not been herein addressed, this study certainly shows that "nurture" has a definite place along with "nature" in the creation of successful entrepreneurs (see particularly the appendix).

This study's results suggest a need for more research in the areas of entrepreneurial skills and aptitudes, subjects that have been conspicuous in entrepreneurship research largely by their absence. For while this study has moved entrepreneurial characteristics into the realm of practical significance, it is our belief that much more than 30% of performance variance can potentially be explained by entrepreneurial skills. Future studies should concentrate on developing the more comprehensive and more thoroughly grounded skill classifications (with attendant instruments) which will make pursuit of this research agenda easier. Since skills can be tested, and such testing will improve with better instruments, much may potentially be gained from better skill instruments in the way of evaluation and the guidance that such evaluation could eventually provide both entrepreneurs and their mentors. (The study of entrepreneurial mental aptitudes themselves through the study and application of previously validated psychological instruments could open up a whole new perspective for the field of entrepreneurship research (e.g. see Guilford,1967; Guilford & Hoepfner, 1971)).

In conclusion, it is hoped that this study will provide impetus toward putting the entrepreneur back into a central position in entrepreneurship research. Few would dispute that both academic theory and practitioner wisdom say this is where he/she belongs.

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APPENDIX: RELIABILITY AND VALIDITY OF MEASURES
Aggressiveness of growth
These three measures of aggressiveness of growth were tested for internal consistency reliability and yielded a Cronbach's a of 0.63. Along with the face-valid justification, this is reasonably sufficient to infer that all three measures represent the same construct (Nunnally, 1967). Thus we subsequently standardized and added these three measures together to form one grand, simplified aggressiveness of growth measure.
Scope
The three overall measures of scope were tested for internal consistency reliability and yielded a Cronbach's a of .82. Since, along with the theoretical justification, this is reasonably sufficient to infer that all three measures indeed represent the same construct (Nunnally, 1967), we subsequently standardized and combined the three measures together to form one grand, simplified scope measure.
Product homogeneity
Cronbach's a for these three items was 0.63 inferring, along with the theoretical justification, that these three measures represent the same construct (Nunnally, 1967). Thus we standardized and combined the three measures to form one overall, simplified industry homogeneity measure.
Construct validity of strategy and industry structure measures
Construct validity is composed of three separate issues, convergent validity and divergent validity (Cook & Campbell, 1979; Widaman, 1985) and nomological validity (Cronbach & Meehl, 1955). We addressed the first two through the means of factor analysis (the third was implicitly addressed by the results of our regressions).
Since two of the strategy and one of the industry structure measures were composed of three items each, there were a total of eleven items purporting to measure five separate constructs. The construct validity of these items was tested by exploratory factor analysis using the method of principal components with the extraction of five factors and varimax orthogonal rotation. The results, displayed in Figure 2, were very well behaved and supportive of both convergent and divergent validity.
Validity of Entrepreneurial skills
Two separate steps were taken to assess the validity of these skill measures. First, to guard against self-report bias, a second (and confidential) observer-report skill measure (using the same operationalization as shown in Table 3) was taken on each entrepreneur by a close colleague in the firm. Second, drawing upon Maier's (1965) often cited work that operationalizes skills as the product of aptitude times experience, both aptitude and experience were operationalized and their product compared with skills.
Observer-report skills
In the case of the observer-report skills, the correlations with self-report skills were quite poor and only one Cronbach's a (comparing self-report with observer-report skills) was greater than .60. On further investigation, the means of all seven observer-report skills were not only considerably higher than the means of the self-report skills, but their standard deviations were much smaller because they were so high. Apparently, it was the observer-report skills that suffered from a "halo" bias, being so high as to suffer from restriction of range. Thus we concluded that the observer-rated skills were not valid.
Aptitude and experience
In the case of operationalizing aptitude and experience and comparing their product with skills, we were much more successful. Experience was operationalized by asking each entrepreneur to estimate how many years since high school he/she had practiced the particular skill in question. Aptitude was operationalized by giving a subset of thirty-five of the entrepreneurs a series of Guilford's (1967; Guilford & Hoepfner,1971)

APPENDIX: RELIABILITY AND VALIDITY OF MEASURES

pre-validated differential intelligence tests, one to match each skill. We were able to match six of the seven skills with one of Guilford's tests, the unmatched skill being leadership. We then compared the products of aptitude and experience with the skills and obtained satisfactory Cronbach's as for each skill except the networking skill (see Table 8). Overall, satisfactory validation for five of the seven self-report skill measures was thus obtained. This provided solid evidence that the self-report method of measuring skills was valid. This being the case, the analysis was continued with all seven skills so that each would receive empirical examination. Restricting our analysis to the five specific skills which were fully validated was undertaken after the analysis using all seven skills, and the results that follow (using all seven skills) were not significantly altered.

Figure 2: Factor Loadings for Strategy and Industry Structure Measures

Measures	Scope	Industry Product Homogeneity	Growth Orientation	Industry Stage	Entry Wedge
1st Scope	**.906**	.120	.026	-.010	.033
2nd Scope	**.906**	-.071	-.011	-.059	.144
3rd Scope	**.695**	.056	.048	-.200	-.371
1st Growth Orientation	-.136	-.066	**.837**	-.077	.001
2nd Growth Orientation	.029	-.029	**.787**	.255	.121
3rd Growth Orientation	.206	.148	**.623**	-.268	.087
Entry Wedge	.001	-.133	.138	-.125	**.894**
Industry Stage	-.148	.068	-.032	**.921**	-.112
1st Industry Homogeneity	-.041	**.864**	-.023	-.132	.025
2nd Industry Homogeneity	.141	**.759**	.138	.160	-.040
3rd Industry Homogeneity	-.014	**.628**	-.126	.063	-.392

Table 8: Cronbach's α for Skill Measures and the Products of Aptitude with Experience

Skill	Cronbach's α
Product	.67
Business	.78
Industry	.73
Leadership	not available
Networking	.17
Executive	.65
Entrepreneurial	.61

HUNTING THE HEFFALUMP: THE THEORETICAL BASIS AND DIMENSIONALITY OF THE CARLAND ENTREPRENEURSHIP INDEX

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ABSTRACT

This paper reports on the theoretical and empirical development, statistical validation, and application of an instrument measuring the strength of an individual's entrepreneurial drive: the drive to create and grow a venture. The implications of the findings are more important than the instrument itself as they demonstrate that entrepreneurial drive can explain differences in the entrepreneurial behavior of individuals. The study shows that entrepreneurial drive is normally distributed and that it does discriminate between entrepreneurs managing high growth and low growth firms. Finally, the findings go to the heart of the definitional debate and explain that the entrepreneur does indeed affect new venture performance: thereby putting the "E" back in the new venture performance model.

INTRODUCTION

There is a clear and pressing need to establish a valid measure of entrepreneurship if the discipline is ever to resolve the question of the impact of an individual entrepreneur on venture performance. The lack of such a measure has confounded research results to date, and promises to continue frustrating attempts to understand the entrepreneurial phenomenon (Herron, 1992). As MacMillan and Katz (1992) aver:

> *"...we cannot afford to lose data because of instrument error. We need to be able to track the phenomena in entrepreneurship the way seismologists track shifts along a fault line. If we do not develop these instruments, we will consistently miss the data we need to produce meaningful research" (p. 7).*

This research describes an exploratory study which is a first step toward developing an instrument which can help researchers and practitioners to measure entrepreneurial drive: the drive to create and grow a business venture.

Our objective in this study was to expand both the conceptual and empirical understanding of the entrepreneur in Sandberg's (1986) new venture performance model. Noting MacMillan and Katz's (1992) and Herron's (1992) observations, our task required us to construct a valid instrument to measure entrepreneurship, test its validity and reliability, and demonstrate its use in examining the effects of the entrepreneur on new venture performance.

Although exploratory in nature, this research demonstrates that entrepreneurial drive can be measured and that an instrument which meets the MacMillan/Katz (1992) and Herron (1992) standards can be developed. Further, the differences in the strength of that drive do affect the performance of a venture. The implications of that finding are more important than the instrument itself. These implications go to the heart of the definitional debate (Gartner, 1988; Carland, Hoy & Carland, 1988), and the conflict between venture capitalists' perception of the entrepreneur and new venture performance models (Sandberg, 1986). The results suggest that entrepreneurship is a normally distributed continuum without lines of demarcation. Consequently, each sample of entrepreneurs contains as much potential for confounding understanding as it does for expanding insight. Differences in research findings naturally devolve from differences among the entrepreneurs in the study. Such differences explain why entrepreneurship scholars appear as the proverbial blind men describing an elephant, why they argue over characteristics versus process, and why the models they develop fail to gain acceptance among venture capitalists and lenders who instinctively recognize the value of an individual entrepreneur in making a venture successful.

This research reports on the development of an instrument which did measure entrepreneurial drive in a statistically valid and reliable fashion, and which did discriminate between entrepreneurs managing high growth and low growth firms. The instrument requires expansion before it can become the established and broadly accepted measure that MacMillan and Katz (1992) and Herron (1992) desire, but its success in this study demonstrates that developing such a measure is possible and within our grasp. Consequently, this exploratory work is an important step toward developing a model of entrepreneurship. It requires exposure to debate in the discipline, as suggested by MacMillan and Katz (1992), to help our young science to grow and mature.

If the results of this study survive debate, the implications for the discipline are significant. Attempts to differentiate *entrepreneurs* from *small business owners* or to categorize business owners in any fashion present an incomplete picture of the entrepreneur. A full portrait must recognize that entrepreneurship is a continuum, and new words may be required to help researchers differentiate individuals under study along that continuum. Macroentrepreneurs, those individuals at one pole, may be highly driven to create ventures which revolutionize an industry, to grow those ventures to tremendous heights, or at least to attempt such creation and growth. Microentrepreneurs, those individuals at the opposite pole, may be perfectly content to manage a small, corner store throughout their entire careers. Entrepreneurs, individuals near the midpoint of the continuum, may be the hardest to describe of all entrepreneurs. Under this viewpoint, it becomes critical for researchers to fully identify and understand the individuals involved in any study.

The authors suggest that entrepreneurial drive is a construct worthy of research. Noting the complexity of human behavior, one must recognize that understanding entrepreneurs will not be a simple or unidimensional task. It will take many minds and great insight to move us farther toward understanding. In addition, attempts to put the entrepreneur back into the new venture performance

model are praiseworthy. It is clear that a link must exist. We do require instruments and measures and it is clearly time for the discipline to be developing its own instrumentation rather than relying upon psychological or sociological measures which were never designed for understanding people in business or entrepreneurship.

Greater understanding of the entrepreneur and progress toward an instrument which can explain entrepreneurial behavior is important for practitioners as well as researchers. Entrepreneurs attempting to build teams to create, manage and grow ventures would be supported in their efforts by an understanding of the differences in behavior which is likely to emerge in individuals with various levels of entrepreneurial drive. Venture capitalists would find a model which can explain individual approaches to venture creation and growth to be valuable in screening entrepreneurs. In fact, progress in the science of entrepreneurship in the form of models and theories with explanatory power will help all practitioners as the science moves toward the development of instruments of practical value and application.

HUNTING THE HEFFALUMP

In his seminal study, Sandberg (1986) was unable to empirically link entrepreneurial characteristics to new venture performance. Like most entrepreneurship researchers, he was frustrated by the absence of valid measurement scales, a problem noted by MacMillan and Katz (1992) and Herron (1992), and one which has long been a confounding factor in entrepreneurship research. In 1971, Peter Kilby (1971) likened the search for an *entrepreneur* to the hunt for the *heffalump* that Winnie the Pooh conducted in A.A. Milne's famous 1926 children's book. Hull, Bosley and Udell (1980) cemented the tradition of *entrepreneurs* as *heffalumps* in their early work on entrepreneurial personalities and the analogy has become part of the folklore of entrepreneurship research. As literary minded entrepreneurship researchers recall, the *heffalump* was a large and important creature. Everyone reported having seen it, although each individual described it differently. Despite the absence of consensus on *heffalump* characteristics, no one would admit to not knowing what a *heffalump* was and everyone avowed that they could recognize one when they saw it.

Sandberg (1986), like many entrepreneurship researchers, was unwilling to delete the entrepreneur from his understanding of new venture performance, despite his inability to capture its characteristics. He observed that most researchers had examined venture performance in terms of entrepreneurial characteristics and that venture capitalists tend to value entrepreneurial characteristics as the most important criteria in funding decisions. Apparently, venture capitalists can recognize an entrepreneur when they see one. We believe that Sandberg, like many entrepreneurship researchers, intuitively felt that entrepreneurial characteristics *must* play a role in new venture performance. Most of us seem to feel that we know what entrepreneurs are, many of us have described them, few of our descriptions agree, yet many of us continue to hunt for the these large, important, but elusive creatures.

In this paper, we intend to re-enter the hunt, but we propose to tackle the problem, noted by MacMillan and Katz (1992) and by Herron (1992), which has so frustrated Winnie-the-Pooh

throughout all these years: we propose to develop a weapon to facilitate the hunt. We believe that there is a clear need to empirically resolve the issue of entrepreneurial characteristics as a possible factor in venture performance, both because such a factor is intuitively appealing, and because so many practitioners seem to be at odds with researchers who, quite rationally and properly, demand more scientific evidence before embracing folklore. This research reports the results of an empirical attempt to create a valid measurement scale of entrepreneurship and to use that scale to link the entrepreneur to new venture performance. We hope to develop a weapon which can capture the *heffalump* and to design tactics which will allow us to track the impact of the creature in venture creation and management.

MODELS OF NEW VENTURE PERFORMANCE

Several models of entrepreneurial firm performance exist within the field of entrepreneurship (Biggadike, 1976; Von Hippel, 1977; Sandberg, 1986). Most studies have attempted to link certain variables, such as business level strategy and industry structure, to new venture performance (Romanelli, 1987; McDougall, 1987; Stuart & Abetti, 1987). While there are many studies which have emulated the linear model of new venture performance espoused by Sandberg (1986), there have been differing results. In his study, Sandberg (1986) finds that industry structure and business strategy are important to new venture performance, but he is unable to empirically link the characteristics of the entrepreneur to that performance. He notes that this finding is troubling because most research has centered on new venture performance as a function of the entrepreneur (Brockhaus, 1980; Carland, Hoy, Boulton & Carland, 1984; Katz & Gartner, 1988). Therefore, despite his findings, Sandberg (1986) is unwilling to delete those characteristics of the entrepreneur from the model such as management competence and industry experience, because venture capitalists tend to value those characteristics as the most important criteria in funding decisions.

In his study, Sandberg (1986) conceptualized the "E" in the new venture performance model at the individual level and measured the characteristics of the individual. Yet, the new venture performance models espoused by McDougall (1987) and McDougall, Robinson and DeNisi (1992), explain a great deal of the variance in new venture performance but do not include dimensions attributed directly to the entrepreneur. McDougall et al. (1992) argue that industry structure is important as well as the fit or interaction of strategy and environment to new venture performance. Other researchers also support the proposition that new venture success is dependent on business strategy and industry structure (Cooper, Willard & Woo, 1986; Miller & Camp, 1985; Biggadike, 1976) as opposed to the characteristics of the entrepreneur.

In contrast to the work of those who would take the entrepreneur out of the new venture performance model, recent research efforts have attempted to put the entrepreneur back into the model. Herron (1992) argues that many of the findings of the research can be traced to methodological phenomena and, therefore, represent statistical anomalies. He argues that the lack of a necessary set of validated scales for construct measurement of entrepreneurial characteristics greatly hampers research in this area. Chandler and Hanks (1994) demonstrate empirically that environment and the competence and experience of the entrepreneur as they relate to strategic choice

have a direct effect on new venture performance. Simply, the manner in which the entrepreneur affects the performance of new ventures is through strategic choice. They argue that, from a strategic choice perspective, the entrepreneur chooses a particular strategy when choice is the greatest, when the firm is new. Previous strategic choices cannot constrain strategic choice when no prior strategic choice has been made. Entrepreneurs make a difference because they use their experiences, competencies, and background to choose business strategy and organizational environment (Weick, 1979).

In this same vein, Gartner, Shaver, Gatewood, and Katz (1994) argue that the problem with research such as Sandberg's (1986) is that the entrepreneur is misunderstood and misspecified. The entrepreneurs' ability to think and understand is important to new venture performance because thinking and understanding are the basis of strategic choice (Child, 1972). The authors agree with Herron (1992) that a major difficulty encountered by researchers attempting to understand the role of the entrepreneur in new venture performance is the absence of a reliable way to measure differences in entrepreneurial behavior.

THE LINK BETWEEN PERFORMANCE AND THE ENTREPRENEUR

The attempt to link certain strategies to performance has long been the objective of many strategic management researchers. Child (1972) argues that managers have choices about strategy and that those strategies affect firm performance. Rumelt (1986) believes that grouping firms with similar strategies enable researchers to see performance differences between certain groups of firms and, therefore, between certain strategies.

Miller and Friesen (1982) compare the strategic characteristics of innovative and growing emergent firms with conservative, non-entrepreneurial firms. They view strategy as varying from a conservative to an entrepreneurial orientation. Miller and Friesen (1982) conclude that entrepreneurial strategies are correlated with higher levels of firm growth as did Covin (1991). Therefore, it seems intuitive that firms which pursue policies of growth would be higher on performance measures and also higher in entrepreneurial drive. Herron (1992) observed that the lack of validated scales for construct measurement of entrepreneurial characteristics greatly hampers research in this area, and MacMillan and Katz (1992) note the need for accurate instruments to further the development of theory.

THE DEFINITIONAL DEBATE

A complicating issue in the development of a valid measure of entrepreneurship is the absence of an established definition of the term. The controversy over the definition of entrepreneurship and the identification of entrepreneurs has been played out in the literature (Gartner, 1988; Carland, Hoy & Carland, 1988). Since McClelland (1961) much of the controversy has centered on the individual who creates a venture. A plethora of articles focussing on personal characteristics has emerged (i.e., Pickle, 1964; Hornaday & Aboud, 1971; Timmons, 1978;

Brockhaus, 1980; Dunkelberg & Cooper, 1982; Brockhaus & Horwitz, 1986; Carsrud, Olm & Eddy, 1986; McClelland, 1987; Solomon & Winslow, 1988; Winslow & Solomon, 1987; 1989; Carland & Carland, 1991) and several attempts have been made to establish a definition of the term entrepreneur (Carland, Hoy, Boulton & Carland, 1984). Nevertheless, no consensus definition has emerged (Shaver & Scott, 1991). Researchers have been like the proverbial blind men describing an elephant. Some researchers think entrepreneurs are like ropes, others like trees, and still others like snakes.

Many researchers have approached this absence of a consensus by positing types of entrepreneurs (i.e., Smith, 1967; Webster, 1977; DeCarlo & Lyons, 1979; Vesper, 1980; Mescon & Montanari, 1981; McClelland, 1987; Louis, Blumenthal, Gluck & Stoto, 1989; Gartner, Mitchell & Vesper, 1989). Other researchers have discussed the limitations inherent in such approaches (Wortman, 1987; Shaver & Scott, 1991) and some have attacked the validity of the approach entirely (Gartner, 1988). Some researchers seem to have totally abandoned the pursuit of a definition as impossible (Mitton, 1989) while others decry the need to shift focus from the individual to the entrepreneurial process (Bygrave & Hofer, 1991) and still others fear that even should one develop an understanding of the personality of an entrepreneur that would not be valuable since individual behavior is not consistent over time nor can personality traits predict behavior (Gartner, 1988).

How is it that so many learned people can look at entrepreneurs and the process of venture creation and see so many different entities? Not only have results been contradictory (i.e., Brockhaus, 1982; Gasse, 1982) but sometimes it has seemed that the individuals and issues under study were aberrant (i.e., Ket de Vries, 1985; Winslow & Solomon, 1987; 1989). Some researchers have suggested that the difference in vision occurs because of a difference in measurement instruments (Sexton & Bowman, 1984; 1985). Others have posited that the groups of people under study differed significantly in characteristics and behavior (VanderWerf & Brush, 1989). The authors think that it may emerge from another source.

Is it important to pursue this issue of definitional conflict? These authors think that it is and so do many other researchers. The failure to establish definitions has disrupted the evolution of a framework for the entrepreneurship discipline (VanderWerf & Brush, 1989; Bygrave & Hofer, 1991) and has resulted in efforts to examine the entrepreneurial process from social (Reynolds, 1991), anthropological (Stewart, 1991), economic (Kirchoff, 1991), strategic management (Sandberg, 1992), population ecology (Aldrich, 1992), role demands (Sexton, 1980) and other approaches. All of these approaches are valuable and greatly advance the field but the fact remains that entrepreneurship is unique among organizational and economic functions in that it is initiated by an act of human volition (Hofer & Bygrave, 1992). It is this intentionality that distinguishes the entrepreneur (Bird & Jelinek, 1988). If one wishes to understand the entrepreneurial process, one must understand the role of the individual in triggering that process (Carland, Hoy & Carland, 1988).

Consider for a moment the tacit assumptions of the definitional debate. Virtually all of the empirical investigations assume that entrepreneurship is a discontinuous function. Many authors (i.e., McClelland, 1961; Mancuso, 1975; Carland, Hoy, Boulton & Carland, 1984) discuss entrepreneurs contrasted against other groups. Others (i.e., Webster, 1977; Dunkelberg, & Cooper, 1982; Vesper, 1980) categorize entrepreneurs as falling into one of several classifications. The former school incorporates a tacit assumption that one either is, or is not, an entrepreneur: a

dichotomous condition. The latter school is based on a tacit perspective that entrepreneurs describe a step function: a discontinuous distribution. What if those axioms are invalid? Carland (1982) suggested that entrepreneurship might actually be a continuum. If it is, then much of the conflict in findings and many of the anomalies could be explained: the people under investigation in all of the studies shared entrepreneurial tendencies but not in the same intensity.

ENTREPRENEURIAL DRIVE

A relatively new, yet promising perspective of the entrepreneurial psyche involves cognitive or managerial style (i.e., Hoy & Boulton, 1983; Ginn & Sexton, 1989; 1990; Brodzinski, Scherer & Wiebe, 1990; Dugan, Feeser & Plaschka, 1990; Carland, Carland & Stewart, 1996). Carland, Carland and Hoy (1992) combined that stream of research with more traditional research on entrepreneurial personality traits, a body of literature which includes many contributions (i.e., Hartman, 1959; Davids, 1963; Hornaday and Aboud, 1971; Palmer, 1971; Liles, 1974; Borland, 1974; Mancuso, 1975; Gasse, 1977; Timmons, 1978; Sexton, 1980; Vesper, 1980; Welsh and White, 1981; Williams, 1981; Dunkelberg and Cooper, 1982; Carland, 1982; Carland, Hoy, Boulton & Carland, 1984; 1988; Ginn & Sexton, 1990; Stewart, 1996; Stewart, Watson, Carland & Carland, 1998). They concluded that entrepreneurship was best understood as an individual drive: the drive toward entrepreneurial behavior. In that same vein, Carland, Carland and Stewart (1996) describe the entrepreneurial psyche as a *gestalt* of multiple personality factors including the need for achievement, the propensity for risk taking, the preference for innovation, and cognitive style. They demonstrated that the various factors are normally distributed and that the varying strengths of the traits in an individual entrepreneur combine to affect that individual's behavior. It is this gestalt of drives which combine to produce differences in entrepreneurial behavior (Carland, Carland & Stewart, 1996).

Although several researchers are turning their focus to entrepreneurial teams (i.e., Kamm, Shuman, Seeger & Nurick, 1990; Ensley & Banks, 1992; Gartner et al., 1994; Chandler & Hanks, 1994; Ensley, Carland & Carland, 1998), this research again examines the individual as the entrepreneur. While Gartner, Bird and Starr (1992) admitted that established firms and entrepreneurial firms differ in the manner in which team level behaviors affect organizational outcomes such as strategy and new venture performance, the same may well be said for the individuals who make up the team and the roles which they play. Bygrave (1989a; 1989b), Gartner et al. (1992), and Miller and Friesen (1984) demonstrate that entrepreneurial firms are not small established firms, but rather that they are radically different. It is our perspective that the source of at least part of those differences is the varying strength of entrepreneurial drive in the managing entrepreneur.

Our objective in this study is to develop further both the conceptual and empirical understanding of the "E" or entrepreneur in Sandberg's (1986) new venture performance model. Noting MacMillan and Katz's (1992) and Herron's (1992) observations, a valid instrument to measure entrepreneurship is mandated. Consequently, the authors have attempted to construct such

an instrument, test its validity and reliablity, and use it to examine the effects of the entrepreneur on new venture performance.

Our review of the literature led us to conclude that entrepreneurship is primarily a gestalt of four elements: cognition, preference for innovation, risk-taking propensity, and strategic posture. The authors hypothesized that these elements combine in an individual's psche to produce a drive to create entrepreneurial ventures. To implement that hypothesis, the authors devised an instrument to measure an individual's proclivity for each of the four constructs.

THE CARLAND ENTREPRENEURSHIP INDEX

The instrument devised initially included forty forced choice questions. The questions dealt with the four constructs evolved from the elements of entrepreneurship espoused in the literature: cognition, preference for innovation, risk-taking propensity, and strategic posture. It was determined that the forced choice format would produce an instrument which required no training to score and which readily yields a numeric score. The desire was to devise an instrument which produced a concrete measure of the strength of entrepreneurial drive, the drive to create a business venture, in an individual. In the following sections are a description of the statistical validation of that instrument and its use in an examination of the effects of the entrepreneur on new venture performance.

THE SAMPLE

Several samples were utilized in validating the instrument. First, a group of 151 senior level business students were asked to complete a survey which contained the Myers-Briggs Type Indicator, the Carland Entrepreneurship Index, and a self-rating scale on entrepreneurial tendency. The students, demographics displayed in Table 1, represented a convenience sample, as they were students in the authors' classes.

TABLE 1:
DEMOGRAPHICS OF THE 151 STUDENT PARTICIPANTS

Sex of Respondents:	Male	60%
	Female	40%
Age of Respondents:	20 to 22 years	72%
	23 to 25 years	19%
	26 to 35 years	7%
	Over 35 years	2%
Rank of Respondents:	Juniors	13%
	Seniors	87%

The second sample consisted of business owners: 225 surveys were distributed using a convenience sampling technique. The survey consisted of demographic questions about the firm

and its owners and contained the Carland Entrepreneurship Index, the Myers-Briggs Type Indicator (Myers & Briggs, 1962), and the Innovation, Achievement and Risk Taking Propensity scales of the Jackson Personality Inventory and Jackson Research Form (Jackson, 1974; 1976). In addition, the survey contained questions about the goals and objectives for the firm and strategies which the owners were pursuing.

Graduate students from the southeastern United States were asked to have small business owners complete the surveys and return them at the end of the semester. Several students were asked to return to the same businesses (with the consent of the owners) the following semester to have the owners retake the Carland Entrepreneurship Index. Of the 225 initial surveys, 211 were usable. The others were eliminated, in most cases because the owner had omitted key questions on the survey or the person who responded had only a small percentage of ownership. The final sample of firms were all individually owned and operated small businesses according to the U.S. Small Business Administration definition. All of the respondents were owners, partners, or major share holders and principal managers of the businesses. The demographics of the final participants are displayed in Table 2.

Both groups represented convenience samples, however, both were sufficiently large (N=151 and N=211) as to eliminate most criticism since the central limit theorem holds that larger samples have a level of confidence which approaches that of a random sample (Mason, 1982). Further, the methodology of the approach used minimized non-response bias. Since the data were collected through personal approaches, there was a high level of participation. Fewer than 20% of the business owners approached declined to participate. The result was that data was collected from individuals who might not have responded to a mail questionnaire.

ESTABLISHED INSTRUMENTS

In validating a personality instrument, discriminant and convergent validity are critical aspects of a statistical evaluation (Nunnally & Bernstein, 1994). Convergent validity implies an intercorrelation with existing measures linked to the underlying phenomenon (Campbell & Fiske, 1959). A recommended testing procedure involves testing to see whether multiple measures of a construct converge (Romney & Bynner, 1992). To facilitate such analyses, established instruments were selected which could serve as potential corollaries: that is, instruments which have been demonstrated to measure some aspect of entrepreneurship.

Many researchers have examined the characteristics of people who start and manage businesses (Stewart, 1996). Among the most durable of these characteristics (Stewart, 1996) are the need for achievement (McClelland, 1961, 1965; Hornaday & Aboud, 1971; Komives, 1972; DeCarlo & Lyons, 1979; Ahmed, 1985), risk taking propensity (Hull, Bosley & Udell, 1980; Sexton & Bowman, 1983, 1984, 1986) and preference for innovation (McClelland, 1961; Hornaday & Aboud, 1971; Timmons, 1978; Drucker, 1985; Gartner, 1990). A promising new appearance in entrepreneurship trait research is cognitive typology (Hoy & Vaught, 1981; Hoy & Carland, 1982; Hoy & Hellriegel, 1982; Barbato & Durlabhji, 1989; Ginn & Sexton, 1990; Carland & Carland, 1991, 1992).

TABLE 2: DEMOGRAPHICS OF THE 211 BUSINESS OWNERS

Type of Business	Retail	38%
	Service	44%
	Wholesale	3%
	Construction	9%
	Manufacturing	4%
	Other	2%
Annual Sales	$100,000 or less	41%
	$100,000 to $250,000	18%
	$250,000 to $500,000	18%
	$500,000 to $1,000,000	9%
	$1,000,000 to $5,000,000	12%
	$5,000,000 and over	2%
Number of Employees	10 or less	85%
	11 to 25	8%
	26 to 50	5%
	51 or more	2%
Business Form	Proprietorship	51%
	Partnership	13%
	Corporation	36%
Age of the Business	10 years or more	37%
	5 to 10 years	34%
	1 to 4 years	24%
	Less than 1 year	5%
Sex of Respondents	Male	69%
	Female	31%
Age of Respondents	Under 25 years	2%
	25 to 35 years	24%
	36 to 45 years	36%
	46 to 55 years	26%
	Over 55 years	12%
Education of Respondents	12 years or less	37%
	12 to 15 years	27%
	16 years	23%
	more than 16 years	13%
Role in Business Start-up	Established business	75%
	Purchased business	21%
	Inherited business	4%
Primary Objective	Profit and Growth	41%
	Provide for Family Income	59%
Depth of Planning	Established Written Plans	23%
	Established Unwritten Plans	63%
	Have Established No Plans	14%

The instrument used to measure the need for achievement is the Achievement Scale of the Personality Research Form (Jackson, 1974). The instrument has been shown to have reliability (Jackson, 1974), to display convergent and discriminant validity, and to possess high correlations

with self and peer ratings (Jackson & Guthrie, 1968). It consists of 16 forced choice questions which may be scored by untrained people. Odd-even reliabilities for two groups (N=83 & N=84) were .57 and .66 after the Spearman-Brown correction had been applied (Jackson, 1974). In a test for validity, Jackson and Guthrie (1968) reported correlations with self ratings and peer ratings of .65 and .46 respectively, and reported that the form possessed convergent and discriminant validity.

The instrument selected to measure risk taking propensity was the Risk Taking Scale of the Jackson Personality Inventory (Jackson, 1976). The instrument consists of 20 forced choice questions, may be scored by untrained people, and has been reported to display high reliability and validity and to exhibit high correlations with self and peer ratings (Jackson, 1976). Jackson (1976), in a test involving two samples (N=82 & N=307), reported internal consistency reliability values of .93 and .91 using Bentler's coefficient theta and .81 and .84 using coefficient alpha. In a test for validity, Jackson (1976) reported (N=70) correlations with the completion of an adjective checklist, with self rating and peer rating of .75, .77 and .52 respectively.

The instrument selected to measure preference for innovation was the Innovation Scale of the Jackson Personality Inventory (Jackson, 1976). This instrument also consists of 20 questions in a forced choice format and can be scored by untrained people. It has been reported to display high reliability and validity and to exhibit high correlations with self and peer ratings (Jackson, 1976). Jackson (1976), in tests involving two samples (N=82 & N=307), reported internal consistency reliability values of .94 and .93 using Bentler's coefficient theta and .83 and .87 using coefficient alpha. In a test for validity, Jackson (1976) reported (N=70) correlations with the completion of an adjective checklist, with self rating and peer rating of .79, .73 and .37 respectively.

The instrument selected to measure cognitive styles was the Myers-Briggs Type Indicator (Myers & Briggs, 1962). The MBTI is an objective instrument with four dimensions measuring dichotomous preferences derived from Carl Jung's (1923) theory of psychological types. These preferences measure how one employs perception of people, problems and environment in a cognitive process which is intricately involved in decision making and in managerial style. The MBTI enjoys wide acceptance and use, excellent test-retest correlation, internal consistency and reliability (Mendelsohn, 1965; Buros, 1970; Keyser & Sweetland, 1984) and has been shown to have satisfactory content, predictive and construct validity (Carlyn, 1977).

The MBTI results in numeric scores which indicate how strongly an individual: is extraverted or introverted arising from relative interest in the outer or inner world; utilizes a sensation or intuitive based preference for perceiving the world; employs a thinking or feeling approach to making decisions; prefers a judging or perceptive attitude for dealing with the world (Myers & Myers, 1980). The introvert's main interest is in the world of ideas and concepts while the extravert's main interest is more involved with the world of people and things. There are two attitudes which can dominate in a cognitive process: perception or judgement. Perception is the process of becoming aware of people, things, acts and ideas. Judgement is the process of coming to conclusions or making decisions about what has been perceived. Those who prefer a sensing mode employ the five senses in gathering information while those who prefer an intuitive mode incorporate ideas or associations from the unconscious mind into their perceptions. A thinking approach to decision making is a logical, step by step process while those who prefer a feeling approach bestow a personal, subjective value on things or actions. People constantly shift from the

perceptive to the judging attitude as they move from a receiving mode to a conclusion mode because the two attitudes are fundamentally opposed. The final scale of the MBTI indicates whether a person prefers one attitude over the other. A person who prefers a perceptive mode will defer decisions or actions and will be more comfortable gathering evidence, avoiding irrevocable actions; those who prefer a judging mode are more comfortable coming to quick conclusions and are less patient with the evidence gathering process (Myers & Myers, 1980). The four attitudes evolved from Jung's work are Extraversion vs. Introversion and Perceptive vs. Judging. Combining these with the four functions of Sensation vs. Intuition and Thinking vs. Feeling, leads to 16 combinations of preferences which are described by the combination of the letters used to designate the preferences on each of the eight scales: ISTJ, ISFJ, ISTP, ISFP, INFJ, INTJ, INFP, INTP, ESTP, ESFP, ESTJ, ESFJ, ENFP, ENTP, ENFJ and ENTJ.

To facilitate empirical testing, we converted the MBTI scores to continuous functions for each of the four pairs of attitudes (Myers & McCaulley, 1985). The resulting numbers produce scales for EI, extroversion versus introversion, SN, sensation versus intuition, TF, thinking versus feeling, and JP, judging versus perceiving. If a number is less than 100, it indicates a preference for the first attitude in the pair, while a score of more than 100 indicates a preference for the second attitude. The actual calculations to convert each of the four scales are as follow (Myers & McCaulley, 1985, p. 9):

EI:	Extraversion-Introversion Scale	=	100 - 2 X (E - I) - 1
SN:	Sensing-Intuition Scale	=	100 - 2 X (S - N) - 1
TF:	Thinking-Feeling Scale	=	100 - 2 X (T - F) - 1
JP:	Judging-Perceiving Scale	=	100 - 2 X (J - P) - 1

Keirsey and Bates (1984) postulated that management style could be explained by temperament in a more straight-forward fashion. Their work is based on the literature of Jung, Kretschmer, Freud, Adler, Sullivan, Maslow, and Spranger as well as the instrumentation of Isabel Briggs Myers and Katherine Briggs (Keirsey & Bates, 1984). They extended Jung's work by explaining that temperament emerges by way of differentiation rather than as a combination of attitudes, preferences, types or functions. That is, an individual displays a particular temperament rather than integrating Jung's attitudes.

Keirsey and Bates (1984) established portraits of temperaments and their potential for explaining individual behavior and used MBTI terminology to label four temperaments: SP or sensation-perceptive; SJ or sensation-judging; NF or intuitive-feeling; and, NT or intuitive-thinking, described in Table 3. Keirsey and Bates (1984) felt that these temperaments represent the major cognitive distinctions among people, although they stressed that temperament is not the result of a combination of MBTI functions. Nevertheless, their temperaments, in essence, condense the 16 MBTI typologies into a more manageable four groupings, which have been described as problem solving styles (Barbato & Durlabhji, 1989).

TABLE 3
THE FOUR TEMPERAMENTS

SP	NF
The SP negotiates well; is good in a crisis; is a trouble-shooter and good in situations where one company takes over another; goes into everything at full speed; has a sharp nose for opportunity and feels that everything is negotiable and nothing sacred; can get cooperation from warring factions, is flexible, excited, open-minded, enthusiastic; is a risk taker; is practical, has acute observation powers; causes things to happen with an economy of motion; is flexible; is a good decision maker; but, does not like theory or routine and lives for the moment.	The NF is personal and personable; draws out the best in people; focuses on individuals; is naturally democratic and participative; has verbal fluency, says the right thing at the right time; can subordinate personal wishes to those of others; is idealistic, empathic, and charismatic; has a silver tongue; sees possibilities; works well with people; can turn liabilities into assets; shows appreciation; but, is generous with time to others so may neglect obligations; makes decisions based on personal likes and dislikes and feels responsible for others.
SJ	**NT**
The SJ is a traditionalist or stabilizer; likes to establish policies, rules, schedules, and standards and create company rituals; is patient, thorough, steady, reliable, orderly; has a strong sense of social responsibility; has a need to serve, to be needed, and to do one's duty; is resistant to change; is decisive; has common sense; is a hard and steady worker; is thorough and loyal; but, is known to be pessimistic, may preserve useless rules and be critical of others.	The NT is a visionary; architect of change; takes pride in technical knowledge; demands a high level of personal performance; is skeptical; hates redundancy and stating the obvious; hungers for knowledge & mastery; sees both long and short term interactions and implications; focuses on possibility, and is technologically ingenious; but, does not communicate well; may lose interest in a task before completion; be insensitive to feelings of others; may be isolated and appear arrogant.

Keirsey, D. & M. Bates (1984). *Please Understand Me.* Del Mar, CA: Prometheus Nemesis.

VALIDATION OF THE INDEX

The first step in validation was a principal component factor analysis with varimax rotation of the responses from business owners to the 40 item index. The four theoretical constructs derived from the literature were embodied in the development of the instrument and served as the limiting factors for the analysis. These values are displayed in Table 4.

As displayed in Table 4, seven questions on the original instrument failed to establish between and within statistical structures (Nunnally & Bernstein, 1994). Those questions, marked by an asterisk in Table 4, were removed from the instrument. The remaining 33 questions all produced significant loading weights and all four factors resulting from the theoretical construct of the instrument were covered by multiple questions. The resulting index was determined to contain questions which were clearly measuring some characteristic; however, the factor analysis did not produce everything which the researchers desired. The loading on two of the four constructs was heavy, but a smaller number of items loaded on the last two constructs. This issue will be addressed in the conclusion section.

TABLE 4
FACTOR ANALYSIS

	Question	Factor 1	Factor 2	Factor 3	Factor 4
	36	-.600	.165	-.243	.018
	16	.545	.498	.212	-.130
	15	.527	-.034	.206	-.282
	7	.497	-.172	.161	.216
	4	.497	.002	.102	.026
	1	-.479	.078	.165	-.386
	40	-.478	-.125	-.062	-.224
	9	.443	.001	-.075	.392
	33	.440	-.137	.171	.088
	24	.436	.044	-.335	.276
	32	-.431	.094	.149	.180
	13	-.404	-.069	.017	-.020
	34	-.400	-.022	-.089	.039
	5	-.373	-.032	.366	-.273
	18	-.340	-.229	.078	.199
*	21	.292	.113	-.256	-.231
*	38	-.262	.171	.196	.154
	20	-.017	.558	.115	.212
	28	.411	.540	.034	-.271
	22	.240	.505	.184	-.282
	11	.081	-.471	.011	.093
	35	-.169	.466	.243	-.005
	6	-.126	.451	.084	.105
	30	-.080	.424	-.031	.309
	2	-.367	-.401	-.004	.020
	10	.084	-.391	.153	-.260
	12	.097	-.370	.223	-.337
	14	.344	-.365	-.058	-.004
	39	-.136	.309	.120	.209
*	27	.043	.219	.186	-.044
	37	-.232	.303	-.458	-.021
	31	-.382	.082	.447	.152
	29	-.085	.121	.381	-.014
	25	.310	.005	-.372	-.171
*	19	.108	-.126	.261	-.082
*	26	.176	-.016	.258	-.194
*	23	-.171	-.094	.254	.213
*	8	.190	-.125	.244	-.223
	3	.114	-.339	.356	.454
	17	.278	.004	.201	.450

The second phase of analysis employed the student groups. Believing that students might be better able to handle a self evaluation tool, they were asked to rate themselves with regard to their entrepreneurial tendencies. Using the definition presented in Carland, Hoy, Boulton and Carland (1984), they were asked to read and respond to the following statement:

If an entrepreneur is an individual who is driven to establish and manage a business for the purpose of profit and growth and is characterized by innovative behavior and practices strategic management; and if a small business owner is an individual who is driven to establish and manage a business for the purpose of furthering personal goals and perceives the business as an extension of his or her personality, intricately bound with personal family needs and desires, where would you rate yourself on a scale of 0 to 10 with 0 representing the strongest of small business owners, and 10, the strongest of entrepreneurs?

Reaction to the statement resulted in a score of 0 to 10 which was treated as a self rating. The self rating score was correlated to the Index score, and the results are displayed in Table 5. The table shows a highly significant correlation between the two scores. The authors concluded that the Index was sufficiently related to self rankings to justify further evaluation.

TABLE 5
CORRELATION WITH SELF RATINGS BY STUDENT PARTICIPANTS

		Index	Self
Carland Entrepreneurship Index Score		1.000	
Self Rating of Entrepreneurship Score		.417	1.000
Bartlett Chi-Square Statistic:	28.412, df = 1		probability < .001

The next phase of validation consisted of a series of tests. Reliability and validity tests generally involve correlations and are considered to produce valid results if the correlation statistics are .70 or higher (Bruning & Kintz, 1987). The first examination consisted of a test-retest correlation. Forty of the respondents had agreed to be retested at least two months after the original completion of the survey. These owners completed the index a second time and the two sets of scores were compared. As shown in Table 6, there was a statistically significant correlation of .80 indicating that the index was consistent over time in producing unique scores for respondents.

In the second phase, the index was subjected to a split-half, odd-even reliability examination. One half of the test questions were compared to the other half of the questions to determine internal validity. The resulting correlation of .73 was statistically significant and is also displayed in Table 6.

TABLE 6
RELIABILITY STATISTICS

Test - Retest Reliability Correlation Between Scores		.80
Bartlett Chi-Square Statistic:	35.840, df = 1	probability < .001
Split - Half, Odd - Even Validity Correlation Between Scores		.78
Bartlett Chi-Square Statistic:	105.252, df = 1	probability < .001
Kuder - Richardson Test for Inter-Item Reliability:	Statistic	.73
Cronbach's Alpha Test for Inter-Item Reliability:	Statistic	.73

Next the index was subjected to the Kuder-Richardson test for inter-item reliability. Because the index consists of dichotomous questions, the Kuder-Richardson produces the same score as Cronbach's Alpha test for inter-item consistency (Bruning & Kintz, 1987). A reliability coefficient of .70 or higher means that the test was accurately measuring some characteristic of the people taking it and that the individual items in the test were producing similar patterns of response in different people (Nunnally & Bernstein, 1994) . As shown in Table 6, the statistic was an acceptable .73, indicating that the index produced valid results (Bruning & Kintz, 1987).

DISCRIMINANT AND CONVERGENT VALIDITY

Convergent validity implies an intercorrelation with existing measures linked to the underlying phenomenon (Campbell & Fiske, 1959). A recommended testing procedure involves testing to see whether multiple measures of a construct converge (Romney & Bynner, 1992). Discriminant validity speaks to the novelty of the measure (Nunnally & Bernstein, 1994). In other words, there should be little correlation between the entrepreneurship index and measures of personality which are *not* associated with entrepreneurship. To test the convergent and discriminant validity of the Carland Entrepreneurship Index, the findings were compared with established personality instruments. As discussed previously, instruments had been included in the original survey package to measure traits which have frequently been linked with entrepreneurship. These traits include the need for achievement, preference for innovation and risk taking propensity (Carland, Hoy, Boulton & Carland, 1984).

Additional comparison was made to the cognitive traits identified by the Myers-Briggs Type Indicator which have also been linked to entrepreneurship. Research employing MBTI personality traits of entrepreneurs has shown a high link between intuition and entrepreneurship (Barbato & Durlabhji, 1989; Carland & Carland, 1991, 1992; Ginn & Sexton, 1990). That is, entrepreneurs tend to be intuitive in their approach to information gathering and decision making. Further, entrepreneurs have been shown to display the NT temperament (Barbato & Durlabhji, 1989; Carland & Carland, 1991, 1992; Ginn & Sexton, 1990), as described by Keirsey and Bates (1984). Research has failed to demonstrate statistically significant links between entrepreneurship and extraversion vs. introversion, or judging vs. perceiving on the MBTI scales (Barbato & Durlabhji, 1989; Carland & Carland, 1991, 1992; Ginn & Sexton, 1990). Ginn & Sexton (1990) did find entrepreneurs to display a thinking orientation as opposed to feeling, but that finding supports the NT temperament discussed previously. They also found that entrepreneurs differ significantly from managers on the judging vs. perception scale, but within the entrepreneurial ranks, individuals were only slightly more judgement oriented (Ginn & Sexton, 1990).

Based upon the literature, the authors concluded that if the Carland Entrepreneurship Index has convergent validity, it should display high, positive correlation with preference for innovation, propensity for risk taking, need for achievement, and an intuitive cognitive preference. If the Index has discriminant validity, it would be expected that it would *not* display high correlation with extraversion vs. introversion, thinking vs. feeling, or judging vs. perceiving cognitive preferences.

The findings, displayed in Table 7, demonstrate that the Carland Entrepreneurship Index has convergent validity. The strong and significant correlations with the established Jackson personality scales and the NT scale of the MBTI shows clearly that convergent validity exists. That is, personality behavioral elements which have traditionally been associated with entrepreneurship were correlated with the entrepreneurship index at a high level and in the correct direction.

TABLE 7
CORRELATIONS WITH ESTABLISHED INSTRUMENTS

	EI	SN	TF	JP	ACH	INN	RISK	Index
MBTI EI Scale	1.00							
MBTI SN Scale	-.32	1.00						
MBTI TF Scale	-.17	.18	1.00					
MBTI JP Scale	-.18	.47	.29	1.00				
Achievement Scale	-.15	.25	-.17	-.02	1.00			
Innovation Scale	-.24	.68	.04	.31	.45	1.00		
Risk Taking Scale	-.33	.62	.04	.37	.28	.55	1.00	
Entrepreneurship Index	-.18	.48	-.25	.08	.46	.55	.57	1.00
Bartlett chi-square statistic:			557.826, df = 28				probability < .001	

MATRIX OF PROBABILITIES

	EI	SN	TF	JP	ACH	INN	RISK	Index
MBTI EI Scale	0							
MBTI SN Scale	<.001	0						
MBTI TF Scale	.017	.011	0					
MBTI JP Scale	.010	<.001	<.001	0				
Achievement Scale	.034	<.001	.016	.741	0			
Innovation Scale	<.001	<.001	.560	<.001	<.001	0		
Risk Taking Scale	<.001	<.001	.614	<.001	<.001	<.001	0	
Entrepreneurship Index	.011	<.001	<.001	.257	<.001	<.001	<.001	0

Table 7 also presents the correlations of the entrepreneurship index with the scales of the MBTI which have traditionally not been found to be associated with entrepreneurship, the extraversion-introversion scale, the thinking-feeling scale, and the judging-perceiving scale. Note that little correlation exists between the entrepreneurship index and the personality temperaments that have not been associated with entrepreneurial behavior, suggesting discriminant validity. There is a statistically significant correlation with the TF scale of the MBTI, slanted toward the thinking side. However, this correlation is not exceptionally large, and is consistent with an entrepreneurship

link to NT temperament which is dominated by intuition but prefers a thinking approach to decision making.

DISCRIMINANT ANALYSIS

An additional test of validity consisted of a discriminant analysis. Discriminant analysis tests whether a measure is useful in differentiating between groups (Wilkinson, 1997). Among the strategic questions included in the survey was a request for the owner to indicate whether the primary purpose for establishing the business was profit and growth or to provide for family income. This question is closely related to the definitional distinction proposed by Carland, Hoy, Boulton and Carland (1984). The respondents were divided into two groups based upon their response to this question and a discriminant analysis was conducted using the personality instrument scores and the Index score.

The artificial decomposition of the respondents was not meant to be a separation into entrepreneurs and non-entrepreneurs. Rather, the separation was intended to represent groups of owners who have dramatically different objectives for their businesses. If entrepreneurship is a continuum, one would expect that such groups of owners would display different levels of entrepreneurial preference. If that is the case, established personality instruments and the Carland Entrepreneurship Index should be able to discriminate between the groups.

The first analysis examined whether the scores on the instruments measuring need for achievement, risk-taking propensity, innovation and the scales of the MBTI could discriminate between the two groups of respondents. The results, displayed in Table 8, show that the instruments did produce a statistically significant function, but most of the independent variables failed their individual t-tests for significance. The model explained 15% of the variance in the dependent variable. The second analysis compared the score on the Carland Entrepreneurship Index to the partitioning. The results, also displayed in Table 8, show a statistically significant model and a significant t-test for the Index. Further, the Carland Entrepreneurship Index explained 17% of the variance in the dependent variable.

Also contained in the strategic questions was an inquiry into planning practices. Business owners were asked to indicate whether they prepared formal, written plans for the development and growth of the business; or, had unwritten plans which they had mentally developed and which they used to guide the development and growth of the business; or, failed to develop plans for the business at all.

As in the previous case, the grouping of the participants by planning depth was not meant to be a separation into entrepreneurs and non-entrepreneurs. However, business owners who approach the planning activities for their firms in such radically different fashions as indicated by these three groupings can be expected to differ from each other. If the Carland Entrepreneurship Index is truly measuring differences among owners, these groups should display significantly different Index scores.

TABLE 8
DISCRIMINANT ANALYSES

Dependent Variable = Primary Business Objective

Discriminant Analysis for Personality Instruments

Multiple R: .393 — Squared Multiple R: .154
Adjusted Squared Multiple R: .125 — Standard Error of Estimate: .468

Variable	Coefficient	Std Error	T	P (2 Tail)
Constant	1.250	.660	1.894	.060
Achievement	-.005	.014	-.384	.701
Innovation	-.005	.011	-.426	.671
Risk Taking	-.035	.008	-4.136	<.001
MBTI EI Scale	.001	.003	.351	.726
MBTI SN Scale	-.001	.004	-.072	.943
MBTI TF Scale	.003	.003	.780	.436
MBTI JP Scale	.004	.004	1.054	.293

Analysis of Variance

Source	Sum of Squares	DF	Mean-Square	F	P
Regression	8.043	7	1.149	5.242	<.001
Residual	44.062	201	.219		

Discriminant Analysis for Carland Entrepreneurship Index

Multiple R: .412 — Squared Multiple R: .169
Adjusted Squared Multiple R: .165 — Standard Error of Estimate: .457

Variable	Coefficient	Std Error	T	P(2 Tail)
Constant	2.250	.116	19.423	<.001
Entrepreneurship Index	-.041	.006	-6.497	<.001

Analysis of Variance

Source	Sum of Squares	DF	Mean-Square	F	P
Regression	8.825	1	8.825	42.207	<.001
Residual	43.280	207	.209		

The distribution of participants across the three planning levels is displayed in Table 9, as is an analysis of variance examining the Carland Entrepreneurship Index score among the groups. As the table indicates, the three groups were different from each other on the Index. The analysis of variance can only point out the existence of a difference; consequently, a t-test was conducted on the various combinations of the groups to identify the source of the difference. The results, also displayed in Table 9, show that the Carland Entrepreneurship Index score was different for each of the groups. The groups with written plans had the highest score, while the group with unwritten plans followed.

As discussed above, researchers have demonstrated that individual business owners who have been classified as entrepreneurs tend to display the NT temperament (i.e., Barbato & Durlabhji, 1989; Carland & Carland, 1992, Ginn & Sexton, 1990). Consequently, an examination was

conducted employing temperament. The business owners were divided into the four temperaments based upon their MBTI scores. The distribution of temperaments is displayed in Table 10, as is an analysis of variance comparing the Carland Entrepreneurship Index score across temperaments. As the table shows, the four temperaments displayed highly significant differences. The t-test conducted to identify the source of differences is also displayed in Table 10 and shows that the Carland Entrepreneurship Index score for NTs was significantly higher than for the other temperaments.

TABLE 9
DIFFERENCES BY PLANNING DEPTH

Business Owner Participants

Distribution of Planning Depth

Depth	Number
Establish Written Plans	23%
Establish Unwritten Plans	63%
Have No Plans	14%

Analysis of Variance
Entrepreneurship Index Contrasted Across Planning Levels

Multiple R: .436 Squared Multiple R: .190

Source	Sum of Squares	DF	Mean-Square	F-Ratio	P
Planning	1190.7	2	595.3	24.202	<.001
Residual	5067.3	206	24.6		

T-Tests between Planning Levels and Entrepreneurship Index Score Comparison

Group	N	Mean	SD	T	P
Written Plans	48	24.02	4.774	-4.753	<.001
Unwritten Plans	131	20.16	4.922		
Written Plans	48	24.02	4.774	6.583	<.001
No Plans	30	16.10	5.403		
Unwritten Plans	131	20.16	4.922	3.773	.001
No Plans	30	16.10	5.403		

The questionnaire included a query which asked the respondent to describe what he or she had done to make the business distinctive from its competitors. The authors subjectively evaluated the answers to this question and divided the respondents into two groups: those who were deemed to have succeeded in differentiating themselves and those who were judged to have failed to distinguish themselves from their competitors. The rationale for this analysis was that those business owners who are more successful at carving out a distinctive competency are likely to be different from those owners who are unable to do so. An Analysis of Variance on the Carland Entrepreneurship Index score between the two groups showed significant differences as displayed in Table 11.

TABLE 10
DIFFERENCES AMONG TEMPERAMENTS

Distribution of Temperaments

Temperament	Number
SJ	44%
SP	18%
NF	16%
NT	22%

Analysis of Variance
Entrepreneurship Index Contrasted Across Temperament

Multiple R: .475 Squared Multiple R: .226

Source	Sum of Squares	DF	Mean-Square	F	P
Temperament	1599.9	3	533.3	20.116	<.001
Residual	5487.7	207	26.5		

T-Tests between NTs and All Other Temperaments on the Entrepreneurship Index Score

Group	N	Mean	SD	T	p
NT Temperament	47	24.75	4.214	-7.644	<.001
All Other Temperaments	164	18.99	5.572		

To determine the source of the differences revealed in the ANOVA, a t-test was conducted. The results, also displayed in Table 11, showed that those respondents who were judged to have established a distinctive competency had significantly higher scores on the index.

TABLE 11
DIFFERENCES BY DISTINCTIVE COMPETENCY

Analysis of Variance
Entrepreneurship Index Contrasted Across Competency Assignments

Multiple R: .383 Squared Multiple R: .146

Source	Sum of Squares	DF	Mean-Square	F	P
Competency	894.7	1	894.7	34.312	<.001
Residual	5215.3	200	26.1		

T-Tests between Competency Assignment Levels on Entrepreneurship Index Score

Group	N	Mean	SD	T	P
No Competency	152	19.24	5.276	-5.858	<.001
Established Competency	50	24.12	4.543		

NORMALITY

An additional statistical evaluation consisted of an investigation into the distribution of Carland Entrepreneurship Index Scores. If entrepreneurial drive is a continuum, one could expect

it to be normally distributed, as are most natural phenomena and personality constructs. Table 12 displays a statistical test for normality, the Kolmogorov-Smirnov test with Lilliefors option (Wilkinson, 1997). As the table shows, the index scores follow the well established, natural phenomenon of the normal curve.

TABLE 12
THE KOLMOGOROV-SMIRNOV TEST FOR NORMALITY

Variable	N	Maximum Difference	Lilliefors Probability
Entrepreneurship Index	211	.074	.007

PREDICTIVE VALIDITY

Remembering our objective to develop further both the conceptual and empirical understanding of the entrepreneur in new venture performance, we now turn to application of the Index in a predictive role. We proposed to test the relationship between entrepreneurial drive as measured by the Carland Entrepreneurship Index and venture performance as measured by sales volume. This required development of a new sample. Venkataraman (1989) holds that the best definition of entrepreneurship is wealth creation. Following his lead, we needed entrepreneurs who clearly manage high performance firms. We chose the *inc. 500* list to find those entrepreneurs.

The authors mailed a survey containing the final form of the Carland Entrepreneurship Index described in the preceding sections to all of the chief executive officers of the 500 firms appearing in the December, 1996, issue of *inc*. magazine and representing the fastest growing private companies in the United States (Conlin, Connor, Davilas, Cheng, Jackubiak & Murphy, 1996). The survey produced 136 respondents, 134 of which were usable (two were incomplete), for a response rate of 27.2%. All of the respondents were chief executive officers of one of the *inc. 500* firms.

TABLE 13
SALES OF THE TWO SAMPLES

		Small Business Owners	Inc. 500 Owners
Number of Respondents		207	134
Sales:	100,000 or less	37.2%	--
	100,000-500,000	18.8%	--
	500,000-1,000,000	17.9%	--
	1,000,000-5,000,000	8.9%	23.9%
	5,000,000-10,000,000	12.1%	29.9%
	10,000,000-20,000,000	1.9%	26.9%
	20,000,000-50,000,000	--	12.7%
	50,000,000-100,000,000	--	2.9%
	100,000,000 or more	--	3.7%

If the Index has predictive validity, it should be able to differentiate between entrepreneurs in the *inc. 500* firms and entrepreneurs in the previous sample of small businesses. We chose sales volume as the variable to examine for differences in venture performance. Given the difficulties associated with other measures of performance in any small business sample, we reasoned that sales level was the least equivocable measure of performance available in both samples. Sales data were available from 207 of the 211 small business owners. The sales of the firms in the two groups are displayed in Table 13. As the table shows, the entrepreneurs labeled *small business owners* operated in firms with dramatically lower levels of performance, as measured by sales, than the entrepreneurs labeled *inc. 500 owners*. This is not surprising considering that the *inc.* list is made up of firms considered by the editors of *inc*. magazine to be the fastest growing private firms in the United States.

Table 14 displays the descriptive statistics for the two groups in the sample. The table shows the results of the application of the Carland Entrepreneurship Index to both sets of respondents.

TABLE 14
DESCRIPTIVE STATISTICS FOR THE SAMPLE

	Small Business Owners	Inc. 500 Owners
Number of Respondents	207	134
Entrepreneurship Index Mean Score	20.3	23.1
Minimum	6.0	13.0
Maximum	32.0	30.0
Variance	28.4	16.0
Standard Deviation	5.3	4.0
Median	20.0	24.0

To test the predictive validity of the Carland Entrepreneurship Index, a regression analysis was conducted with sales as the dependent variable and scores on the Index as the independent variable. The results are displayed in Table 15.

TABLE 15
REGRESSION ANALYSIS

Dependent Variable: Sales n=334 R^2 = .083
Adjusted R^2 = .080 Standard Error of Estimate: 1.979

Variable	Coefficient	Std Error	Std Coef	Tolerance	T	P
Constant	1.134	0.476	0.000	.	2.382	.018
Index Score	0.118	0.022	0.288	.100E+01	5.480	<.001

Analysis of Variance

Source	Sum of Squares	DF	Mean Square	F	P
Regression	117.592	1	117.592	30.035	<.001
Residual	1299.836	332	3.915		

As the table shows, the regression analysis demonstrated with a high degree of probability that variation in sales of the firm is influenced by the strength of the entrepreneurial drive of the managing entrepreneur, as measured by the Carland Entrepreneurship Index. The function does not explain a high level of variation as the R^2 is only eight percent; however, the literature has clearly demonstrated that other factors influence firm performance. Sandberg (1986) showed that industry structure and strategy affected new venture performance; McDougall, Robinson and DeNisi (1992) added the origin of the venture and the interaction between industry structure and strategy to the function; and Ensley (1997) added the behaviors, actions and state of the entrepreneurial team to the function. Consequently, we would not expect a high coefficient of correlation given the simple model tested in this research.

Finally, we conducted an analysis of variance on the Carland Entrepreneurship Index score between the two groups of entrepreneurs in the sample. We wanted to know if the two groups displayed a significant difference in entrepreneurial drive. The results are displayed in Table 16.

TABLE 16
ANALYSIS OF VARIANCE

Entrepreneurship Index Score Compared Across Respondent Groups

Source	Sum of Squares	DF	Mean Square	F	P
Group	640.387	1	640.387	27.159	<.001
Error	7993.244	339	23.579		

Independent T-Test on Index Score by Respondent Group

Group	N	Mean	SD	T	P
Small Business Owner Group	207	20.3	5.3	-5.533	<.001
Inc. 500 Owner Group	134	23.1	4.0		

As the table shows, there was a highly significant difference between the two groups of entrepreneurs in terms of entrepreneurial drive as measured by the Carland Entrepreneurship Index. Given the very different nature of the two groups, we would expect to find such a difference if, in fact, the Index does differentiate between entrepreneurs. Clearly, the entrepreneurs managing firms recognized as members of the *inc. 500* must exhibit a stronger entrepreneurial orientation than would entrepreneurs managing more traditional and typical small businesses.

CONCLUSION

There is a clear and pressing need to establish a valid measure of entrepreneurship if the discipline is ever to resolve the question of the impact of an individual entrepreneur on venture performance. The lack of such a measure has confounded research results to date, and promises to

continue frustrating attempts to understand the entrepreneurial phenomenon. This has been an exploratory study addressing the problem.

Despite the success of the Carland Entrepreneurship Index described in this study in discriminating among different groups of entrepreneurs, and despite its success in predicting sales volume, the Index is incomplete. The factor analysis indicated that the Index was heavily loading on two of the underlying constructs, while only lightly covering the remaining two constructs. Clearly, the Index needs to be broadened and expanded to provide strong coverage of all of the underlying constructs. Further, additional research is clearly required before this instrument, or any instrument, can achieve acceptance in the entrepreneurship literature and become the measure that MacMillan and Katz (1992) and Herron (1992) desire.

We conclude that the Carland Entrepreneurship Index described in this paper requires refinement and expansion in order to become the kind of instrument which is so sorely needed in the entrepreneurship discipline. Nevertheless, we must also conclude that entrepreneurship *can be measured* if one views it as an individual drive to create an entrepreneurial venture. Further, entrepreneurial drive is a valid construct in understanding differences in the approaches individual entrepreneurs take to starting and managing ventures. We believe that our findings support a conclusion that entrepreneurial drive is normally distributed. If that conclusion is valid, it suggests that individual differences in the strength of that drive among members of any data set are the primary source of confusion in findings regarding the entrepreneurial personality.

Finally, we believe that our findings support a conclusion that venture performance is indeed affected by the personality of the entrepreneur and that higher levels of venture performance are partially driven by the strength of the managing entrepreneur's drive. In short, Sandberg (1986) was right to keep the entrepreneur in the new venture performance model despite his inability to quantify the impact.

IMPLICATIONS OF THE FINDINGS

If the results of this study are valid, the implications for the discipline are significant. Attempts to differentiate *entrepreneurs* from *small business owners* or to categorize business owners in any fashion present an incomplete picture of the entrepreneur. A full portrait must recognize that entrepreneurship is a continuum, and new words may be required to help researchers differentiate individuals under study along that continuum. If we visualize the traditional bell shaped curve, individual entrepreneurs may fall at any point under that curve. Those individuals at one pole may be highly driven to create ventures which revolutionize an industry, to grow those ventures to tremendous heights, or at least to attempt such creation and growth. Those individuals at the opposite pole may be perfectly content to manage a small, corner store throughout their entire careers. Individuals near the midpoint of the curve may be the hardest to describe of all entrepreneurs.

To illustrate the significance of the bell shaped continuum, label individuals at the poles of the continuum as microentrepreneurs and macroentrepreneurs. If the concept of entrepreneurial drive is valid, then the former have low levels of entrepreneurial drive and create and manage firms

which may provide a great deal of psychic rewards, but which do little from an economic perspective. The latter create and manage firms which may have tremendous economic impact, although the fierce demands of the ventures may damage family life. Following this etiology, individuals near the midpoint of the continuum would simply be entrepreneurs and their behaviors would be the most difficult to understand or predict. Further, there would be no established line of demarcation between microentrepreneurs and entrepreneurs, or between entrepreneurs and macroentrepreneurs. Now, consider the complexity involved if one developed data on a cross section of the entrepreneurship continuum and attempted to use that data to understand or predict entrepreneurial behavior or venture performance. Under this viewpoint, it becomes critical for researchers to fully identify and understand the individuals involved in any study.

SUGGESTIONS FOR FURTHER RESEARCH

We suggest that entrepreneurial drive is a construct worthy of research. Noting the complexity of human behavior, we must recognize that understanding entrepreneurs will not be a simple or unidimensional task. It will take many minds and great insight to move us farther toward understanding.

In addition, we suggest that attempts to put the entrepreneur back into the new venture performance model are not invalid; indeed, they are praiseworthy. It is clear that a link must exist. We do require instruments and measures and it is clearly time for the discipline to be developing its own instrumentation rather than relying upon psychological or sociological measures which were never designed for understanding people in business or entrepreneurship.

Finally, we would like to propose that we need a better description of the *heffalump* (Kilby, 1971). We invite researchers to bring their minds and their varied approaches to bear on this issue. Given the findings of this research, we intend to pursue the attempt to establish an instrument which can produce a more complete measure of entrepreneurial drive. These findings demonstrate the validity of such an effort and we suggest that other researchers join us in this quest for the *heffalump*. Although we must conclude that this preliminary search is incomplete, we suggest that the end is in sight.

We believe the *heffalump* to be a gestalt of personality factors which combine into an individual drive to create and grow entrepreneurial ventures. Further, we believe that the special weapons and tactics required to capture the creature include a measure of that entrepreneurial drive and its application to large numbers of entrepreneurs in a wide variety of circumstances. Exploratory though this research may be, we believe that we've caught a glimpse of the creature and we have begun the development of an instrument to describe it. We hope that other researchers will reenter the pursuit.

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THE ENTREPRENEURIAL APTITUDE OF PRISON INMATES AND THE POTENTIAL BENEFIT OF SELF-EMPLOYMENT TRAINING PROGRAMS

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ABSTRACT

Using newly collected data, and building upon previous research, this study compared a sample of prison inmates with various other entrepreneurial and non-entrepreneurial groups with regard to entrepreneurial aptitude, as measured by the Miner MSCS-T test. Results show inmates scoring higher than "normative" entrepreneurs, "slow-growth" entrepreneurs and "manager-scientists," but lower than "high-growth" entrepreneurs. Also, inmates score the same regardless of type of crime, first-time versus repeat conviction, or enrollment or not in small business/self-employment training programs. The implications of these findings, including the potential benefits of post-prison self-employment and of training programs for inmates, are discussed.

INTRODUCTION

A major focus of attention and policy in this country today is the very large prison inmate population, and the substantial level of recidivism which works to maintain this population. Growing at a 7% annual rate since 1990 (in comparison with a total population annual growth rate of 0.91%), the total American prison population reached two million in 2000, with a new jail or prison being built somewhere in the United States on the average of once a week. (www.cia.gov.; www.cjcj.org.). (Minority inmates constitute 62% of the state and federal prison population, yet only 22% of the total American population (www.geocities.com).) Recidivism, the cycle in which ex-convicts return to crime and subsequent prison sentences, further exacerbates the problem. Researchers have found that 70% of young convicts return to prison within six years (Seligman, 1989), parole violations are up 39% since 1990 (Willing, 1999), and the rate of ex-convicts returning to crime may be even higher, since such studies only measure actual convictions rather than crimes committed (Grossman, 1985).

Within a business research context, it is particularly interesting to note the relationship between post-prison employment and the rate of recidivism. Unemployed ex-convicts are three to five times more likely to commit another crime than are those who are employed (Jackson, 1990). Yet it is especially difficult for ex-convicts to obtain employment, as their criminal records are

viewed upon negatively by most hiring employers. For those ex-convicts who are minorities, the opportunities for employment are even lower.

It follows that social policy programs which would reduce the levels of unemployment among ex-convicts, and thus reduce recidivism, would be of benefit to society at large, since recidivism imposes major costs to society both objectively (the financial costs of both the crimes and the resulting incarcerations) and subjectively (higher crime rates impose quality-of-life tolls upon society). And because the objective of increasing ex-convicts' employment by others faces such high hurdles, the alternative of fostering self-employment for ex-convicts is an important consideration and the basis for this article.

More specifically, this article considers the possibility that some prison inmates may have high levels of entrepreneurial aptitude or propensity, and thus may be able to avoid recidivism via success in self-employment endeavors rather than through employment by others after leaving prison. Furthermore, if such entrepreneurial aptitude exists, then self-employment training programs for selected inmates soon to leave prison (or for recently released inmates) would constitute sound social policy and be of benefit to society. Prior studies have shown such programs to be effective in facilitating the reemployment of the unemployed (primarily laid-off workers) (Benus, 1994). Such programs generally involve training in basic small business skills, both for start-up and ongoing operations.

In recent years, representatives from the U.S. Small Business Administration, from many colleges and universities, and from other agencies and organizations have been invited into jails and prisons to talk about small business and self-employment or to offer business courses for college credit. Very often, these representatives come away highly impressed with the level of understanding that inmates have regarding the nuances of running one's own business, including such critical factors as having sufficient start-up capital, developing a business plan, and the importance of cash flow in addition to profitability (Sonfield, 1992).

Thus, subjective/anecdotal analysis seems to indicate that at least some prison inmates may have high entrepreneurial aptitude. However, conclusions drawn from non-empirical analyses are not strong enough on which to base social policy recommendations. For this reason, the authors have conducted more objective empirical research to determine whether these subjective conclusions can be confirmed.

PRIOR RESEARCH

While much research has been conducted in the fields of entrepreneurship, small business, and criminology, and the bodies of reporting literature in these areas are substantial, there has been extremely minimal analysis of entrepreneurial aptitude among prison inmates, or of the social policy implications of this topic. A search of the literature indicates only the work of Sonfield, Barbato and Lussier, investigating the question of whether prison inmates possess high levels of entrepreneurial aptitude (Sonfield, 1992; Sonfield & Barbato, 1994; Sonfield & Barbato, 1995; Sonfield, Lussier & Barbato, 1999).

With regard to the literature on entrepreneurial aptitude, a large body of research has been conducted since the 1960s (some examples, chronologically: Gasse, 1982; Aldrich & Zimmer, 1986;

Begley & Boyd, 1987; Bird & Jelinek, 1988; Davidson, 1989; Johnson, 1990; Guth, 1991; Cooper & Gascón, 1992; Block & MacMillan, 1993; Naffziger, 1995; and Miner, 1997). In spite of this large record of research, there is still little consensus as to whether psychological characteristics are associated with entrepreneurial aptitude and entrepreneurial success. For every writer who concludes in favor of this association, another reaches the opposing conclusion. Such a mixed current opinion certainly warrants additional research such as that reported here.

METHODOLOGY

Design and Sample

The sample consisted of 59 male inmates from three different prisons in three states: New York (n = 29), Maryland (n = 12), and Massachusetts (n = 18). The Maryland and Massachusetts inmates were taking a self-employment/small business course and all class members completed the survey instrument during class time; the New York inmates were not taking any course and about 50% of those asked volunteered to complete the instrument. The mean age of the total sample was 29, with a standard deviation of 8.2 years.

Although a larger sample size would have been preferable, prison authorities tend to be very resistant to external investigations of any nature, and these three instances of cooperation from prison authorities resulted from a much larger number of requests. Thus, the limitations of the relatively small sample must be noted.

The inmate sample was compared with a group of 135 "normative" entrepreneurs (a sample of individuals who had started their own business ventures) (Miner, 1986), a group of 50 entrepreneurs of "fast-growth" firms (a sample of entrepreneurs whose ventures were performing at a high rate of growth and profitability), a group of 47 entrepreneurs of "slow-growth" firms (a sample of entrepreneurs whose ventures were performing at a low rate of growth and profitability), and a group of 37 "manager-scientists" - managers of science-oriented entrepreneurial firms, but who were not the founders/entrepreneurs of their firms (Smith & Miner, 1985). ("Fast-growth" and slow-growth" were not quantitatively defined by Smith and Miner.) Thus, the comparison groups actually were owners and/or managers of their own businesses. Such owner/managers tend to have higher entrepreneurial aptitude than the general population (Brandstatter, 1997), and thus provide logical comparison groups for the inmate sample. It should be noted that the data on these comparison groups were specifically provided by Miner to allow subsequent researchers to have a comparative base from which to make comparisons with later sample groups, often more specific in character (gender, minority, etc.). Thus, while these comparison data may have been collected earlier than the inmate data, the comparison is appropriate.

Hypotheses

Based on the findings of earlier research in this area by Sonfield, Barbato and Lussier (1994, 1995, 1999), several hypotheses were tested:

H1:	The prison inmates have the same entrepreneurial aptitude as the "normative" group of entrepreneurs, both in total MSCS-T scores and in subscale scores.
H2:	The prison inmates have a higher entrepreneurial aptitude than the group of entrepreneurs of "slow-growth" firms.
H3:	The prison inmates have a lower entrepreneurial aptitude than the group of entrepreneurs of "fast-growth" firms.

Hypotheses 1 through 3 are based upon, and are consistent with, prior research in this area, ie. the specific findings of Sonfield and Barbato (1994, 1995).

H4:	The prison inmates have a higher entrepreneurial aptitude than the group of "manager-scientists."

Hypothesis 4 is based upon the fact that "manager-scientists" are, by definition, not entrepreneurs and thus should not be expected to possess as high a level of entrepreneurial aptitude as individuals who are engaged in entrepreneurial activities (Brandstatter, 1997).

H5:	The prison inmates enrolled in self-employment/small business courses have a higher entrepreneurial aptitude than inmates not enrolled.

Hypothesis 5 follows from the proposition that prison inmates with higher entrepreneurial aptitude are more likely to enroll in self-employment/small business courses.

H6:	The prison inmates' entrepreneurial aptitude is the same regardless of type of crime committed.
H7:	The prison inmates' entrepreneurial aptitude is the same regardless of first-time or repeat offender status.

Since there are no prior research data relating to hypotheses 6 and 7, the null hypothesis is tested.

Given the very limited previous research with regard to the entrepreneurial aptitude of prison inmates, there are of necessity equally limited theoretical bases for these seven hypotheses. Still, since the purpose of this current research is to continue an initial probe into the subject, the appropriateness of the hypotheses is supported.

Measures

The Miner Sentence Completion Scale-Form T is a projective testing instrument which has been shown in many studies to validly measure motivational factors associated with entrepreneurial success. Furthermore, validity of this instrument has been established among various criteria of entrepreneurial firm growth, and the subscales also differentiate between entrepreneurs and managers (Bellu, 1988, 1992; Bellu, Davidson & Goldfarb, 1990; Miner, 1997; Smith, Bracker &

Miner, 1987; Smith & Miner, 1985). Five gauges of such motivation are measured: a need for self-achievement, a preference for avoiding unnecessary risks, a desire for feedback on the results of one's efforts, an aspiration for personal innovation, and a desire to think about and plan for the future. Respondents are asked to develop sentences from 40 stems, 8 of which measure each of the five motivational factors. Examples of the stems are:

Inventing something new . . .
Uncertainty . . .
Saving money for an education . . .
Performance rating systems . . .

Using a comprehensive scoring guide (Miner, 1986), the projective responses to the stems are scored with regard to the five motivational factors listed above. Each of the five subscale scores can range from +8 to -8, and total scores from +40 to -40, although actual scores tend to be much more narrowly distributed. (As each stem response can be scored positive, neutral or negative, relative to the motivational factor being measured, negative subscale scores can sometimes result.)

In this study, to further strengthen the reliability of the MSCS-T scoring, all inmate test data were scored separately by two different trained and experienced scorers, and the means of the resulting 40 pairs of each respondent's scores were used. Variance between the two scorers' scores was very low (but not statistically tested).

In addition to the Miner MSCS-T scores, inmates responded to a variety of written survey questions concerning several personal attributes, including enrollment in self-employment/small business courses, type of crime committed, and first-time versus repeat offender status.

Analysis

To test H1, multivariate analysis of variance (MANOVA) was run using the five subscale and the total scores, with the normative sample and the inmate sample. MANOVA results may be different than multiple tests of mean score differences due to multiple interaction comparison procedures. However, MANOVA also provides univariate test results, which decreases the probability of Type I errors (finding differences that do not exist).

For H2, H3 and H4, one-sample t-tests were run for each hypothesis with the inmate total MSCS-T scores used as the dependent variable and the comparison groups being the inmate sample versus the slow-growth entrepreneurs (for H2), versus the fast-growth entrepreneurs (for H3) and versus the managers-scientists (for H4).

To test H5, a t-test was run with the total MSCS-T scores as the dependent variable, with the comparison groups being those inmates enrolled in courses versus those inmates not enrolled in courses.

To test H6 and H7, t-tests were run with the total MSCS-T scores as the dependent variables and type of crime ("drug-related" or "other") and first or repeat offender as independent variables.

Although not a hypothesis test, a MANOVA was run to determine whether there were any total or subscale score differences between the three prison inmate groups.

Table 1: Mean MSCS - Form T Scores

	I Prison Inmates (n = 59)	II Normative Data for Entrepreneurs (n = 135)	III Entrepreneurs Fast Growth Firms (n = 50)	IV Entrepreneurs Slow Growth Firms (n = 47)	V Manager-Scientists (n = 36)
Total Score	8.83	6.81	11.32	0.32	2.08
Self Achievement	2.49	1.91	3.32	0.34	0.73
Avoiding Risks	1.58	0.94	1.44	(0.28)	(0.05)
Feedback of Results	1.42	(0.20)	0.50	(1.68)	(1.15)
Personal Innovation	3.01	2.99	4.06	1.64	2.24
Planning for the Future	0.46	1.17	2.10	0.30	0.68
MANOVA Test Significance Level					
Prison Inmates vs. "Normative" Entrepreneurs	p. = .000				
One Sample T - Tests Significance Levels					
Prison Inmates vs. "Slow Growth" Entrepreneurs	p. = .000				
Prison Inmates vs. "Fast Growth" Entrepreneurs	p. = .000				
Prison Inmates vs. "Manager-Scientists"	p. = .000				

Sources: Prison Inmates: Current Study
Normative Data: Miner (1986)
Entrepreneurs, Fast Growth and Slow Growth: Smith & Miner (1985)
Manager-Scientists: Smith & Miner (1985)

RESULTS

The inmates in Maryland (n = 12) and in Massachusetts (n = 18) were enrolled in a course while the New York inmates (n = 29) were not enrolled in a course, but volunteered to complete the survey instrument. There were no significant differences in the MSCS-T scores for any of the three states nor for those enrolled or not enrolled in a course. As previously discussed, this relatively small sample was the result of the general protectiveness of prison administrators, and the generalizability of the results is limited by the sample size.

H1 was not supported by the MANOVA results, as the Pillais, Hotellings and Wilks tests were all significant (p. = .000). There are significant differences between both the subscale and total scores of the prison inmates and the normative entrepreneurs, with the inmates having the higher

entrepreneurial aptitude (total score m = 8.83 vs. m = 6.80). See Table 1 for a synopsis of the test results for H1 through H4.

H2 was supported, with the inmates having a higher entrepreneurial aptitude than the slow-growth entrepreneurs (total score m = 8.83 vs. m = 0.32, p. = .000).

H3 was supported, with the inmates having a lower entrepreneurial aptitude than the fast-growth entrepreneurs (total score m = 8.83 vs. m = 11.32, p. = .000).

H4 was supported, with the inmates having a higher entrepreneurial aptitude than the manager-scientists (total score m = 8.83 vs. m = 2.08, p. = .000).

H5 was not supported; there was no significant difference in the entrepreneurial aptitude of inmates taking and not taking small business/self-employment courses (total score "taking" m = 9.07 vs. "not taking" m = 8.59, p. = .718).

H6 was supported; inmate aptitude was the same regardless of type of crime (total score "drug-related" m = 9.68 vs. "other" m = 8.49, p. = .417).

H7 was supported; inmate aptitude was the same regardless of first vs. repeat offender (total score "first" m = 9.38 vs. "repeat" m = 8.08, p. = .332).

DISCUSSION

This research confirms the conclusions of previous studies of Sonfield and Barbato that some prison inmates possess high levels of entrepreneurial aptitude; more specifically at a level lower than "high-growth" entrepreneurs and higher than both "normative" and "low-growth" entrepreneurs (Sonfield & Barbato, 1994, 1995).

Furthermore, this research provides new conclusions, based on data not tested in the earlier studies. First, the tested prison inmates have higher entrepreneurial aptitude than non-entrepreneur "manager-scientists." Secondly, enrollment in a self-employment/small business course, or inmate attributes such as type of crime or first versus repeat offense, can not serve as predictors of such aptitude.

Again, it should also be noted that the statistical similarity of the inmate MSCS-T scores in each of the three prison sub-samples supports the reliability of this inmate data, which was collected over several years in three very different inmate populations in three states.

With regard to the broader issue of the validity of "entrepreneurial aptitude" and whether psychological characteristics are associated with such aptitude and with entrepreneurial success, this study adds one more set of data and analytical findings to the body of knowledge, but it can not tip the balance of the cumulate consensus one way or the other.

CONCLUSIONS

As previously discussed, ex-convict recidivism is higher for those persons who are unable to obtain employment after leaving prison and imposes a high cost on society; and yet employment opportunities are especially limited for ex-convicts. Thus self-employment would be a viable alternative for ex-convicts, at least for those with above average entrepreneurial aptitude, since

higher levels of entrepreneurial aptitude tend to correlate with business success (Bellu, 1988, 1992; Bellu, Davidson & Goldfarb, 1990; Smith, Bracker & Miner, 1987; Smith & Miner, 1985).

This current study indicates that some prison inmates have high levels of entrepreneurial aptitude, and thus the potential for entrepreneurial success. Furthermore, this aptitude appears to be broad among the tested inmates, and not dependent upon specific inmate attributes or exposure to small business or self-employment training (while entrepreneurial skills can be taught, entrepreneurial aptitude may be more intrinsic).

Since self-employment/entrepreneurial training has been shown to facilitate reemployment (Benus, 1994), it therefore follows that such training for certain prison inmates prior to their release would be a positive contribution to the reduction of recidivism and would be of benefit to our society. Inmates selected for training might be identified by interview and/or entrepreneurial aptitude testing. (This conclusion raises additional issues that are beyond the focus of this study. For example, the voting public is generally wary of spending monies in prisons beyond the most basic incarceration costs; thus self-employment training may be politically unpopular even if it were shown to lead to long-run savings in correctional costs to society. Furthermore, ex-convicts would have extra difficulties in raising business startup capital, and any social policy programs would have to address this issue as well.)

Further analysis and development of these issues, with larger sample sizes and using additional prison populations, is encouraged.

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BUILDING THEORY: THE RELATIONSHIP BETWEEN ATTRIBUTION THEORY AND THE PERCEIVED OUTCOMES OF ENTREPRENEURIAL VENTURE FAILURE

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ABSTRACT

When businesses close, attention may (but not necessarily) be given to the economic impact of the closure on the community and consumers (most businesses, like good generals, probably simply fade away without notice). But in all cases, there is an impact on the entrepreneur. What of the individual and the risks that were taken, how has the entrepreneur fared, and what are the social, psychological impacts as that individual moves forward? The purpose of this paper was to provide insight into the manner in which an entrepreneur comes to decide what to do after a venture fails and how the venture experience has affected personal aspects of the entrepreneur's life. It was proposed that a well-understood and influential social psychology theory of how outcomes are influenced by attributions made by an individual can be used to better understand the nature and scope of the impact of failure on an entrepreneur's life. In much the same way an individual's attributional explanatory style influences consequent attributions and decisions, an entrepreneur's explanatory style should have a role in the perceived outcomes of a failed entrepreneurial venture, which in turn affects consequent decisions.

INTRODUCTION

Past research on the entrepreneur who has failed has been limited because it has been descriptive and not theoretically or empirically based. Yet all failure does not appear equal, at least as it affects the individual. One person's failure may be that person's depression but is the motivation for future success for another. The manner in which failure affects individuals differently may be explained by differences in an individual's general tendencies to interpret the causal nature of failure.

"Attribution theory" is a well-developed set of theories and empirical findings that has directed a social psychological literature in understanding the causal interpretation of events. While it would seem conceptually logical to look at how theories that explain the effects of failure can help us understand the effects of entrepreneurial failure (attributions affect decisions, therefore,

attributions should affect business decisions), the connection between these diverse literatures has never been made.

To see if work in the area of attributions for failure is relevant to understanding and illuminating the area of the effects of failure on the entrepreneur we use a theoretical technique called substantive modeling (Popper, 1963). In substantive modeling you take a well-understood area of theory and research in one area and apply it to another. In this research, the better understood stream of research called attribution theory (specifically attributional explanatory style) was used to understand the effects of failure on future decisions of the entrepreneur. Attributional explanatory style should determine how the business failure experience affects future decisions and behavior in much the same way as it has been found to affect other life decisions. We propose that an individual's explanatory style affects the consequences of a failed business venture as measured by differences in perceived financial well-being, beliefs about future career opportunities, perceptions of family relations, and self-esteem in much the same way as attributional explanatory style has been found to affect individual behavior in the well developed social psychological literature.

BECOMING AND BEING AN EX-ENTREPRENEUR

Though the aspirations of entrepreneurs are that their businesses will succeed, the reality is many do not. Even those businesses that are smashing successes are retired, sold, or passed on to someone else. All entrepreneurial enterprises die in some way. But generally, an entrepreneur makes the transition to becoming an ex-entrepreneur through the failure of the venture.

Articles dealing with managing failure are often found in business magazines and newspapers and are of the personal account nature—"Why my business failed" or "How I bounced back from bankruptcy." These accounts usually focus on turning the failure of the business into a positive that results in the future success of another venture. To think of failure as a positive experience seems endemic in the popular entrepreneurial literature. "Our company failed, but we didn't. We learned. The label 'failure' would have applied to us only if we had called it quits and had lost our entrepreneurial drive" (Wiley, 1993, p. 8). " . . . we should take the gifts that failure is offering to us and use them in a spirit of modesty and good sense. Failure is not defeat. Failure is part of the learning process that leads to success" (Stein, 1990, p. 72).

The positive attitudes of entrepreneurs are clearly Darwinian (in a sense), since the road to success is paved with failure (at least statistically). The scent of success at some point in the future clearly drives some entrepreneurs. "Making sure that you can play the game another day" (Jamison, 1994, p. 242) financially as well as emotionally, enables some entrepreneurs to continue their attempts with business ventures. For would-be entrepreneurs, recognizing that failure is likely to occur at sometime, managing failure instead of it managing them, seeing it as a chapter in their lives rather than an end to their lives' plans, and focusing on the lessons learned from the failure experience are the words of wisdom given by those who have failed. The proclamations of how failure leads to success almost makes one want to fail so that success is more likely. The preparation for success can come from how one deals with failure but is not necessarily its consequence.

The search for why a business fails is in the eye of the beholder, the perception of the entrepreneur who has failed. Driscoll (1989) said it this way, "Three words spell the difference between success and failure: expectations, perceptions, and reactions" (p. 47). A social psychologist would recognize this thinking as the basic tenets of attributional theory and this serves as the foundation for this study. This study proposed that perception and attribution of the causes that led to failure would affect the reactions or perceived outcomes as a result of that failure in the entrepreneurial setting as it does in other areas of one's social psychological life. In considering the consequences and risks of an entrepreneurial startup, Liles (1974) posed four risk areas for consideration: financial well being, career opportunities, family relations, and psychic well-being (self-esteem). These risks tap into the professional and personal aspects of the entrepreneur's life and Liles suggested that entrepreneurs undertake a careful analysis of these risks before making the startup decision. These four areas would seem a fruitful place to start to look for the effects of attributional explanatory style on the consequences of failure.

Financial Well-Being

Startup businesses create some degree of financial burden on the individual and family. That financial burden may be in the form of the initial capital investment, the instability of family income as a result of unpredictable profitability and pressures to reinvestment back into the business, or the continued personal financial support of the business through lean times. The financial well-being of the entrepreneur may be compromised in these situations and may impact and be impacted by an entrepreneurial failure.

Ronstadt (1985, 1986) found that nearly 75 percent of the ex-entrepreneurs interviewed exited their entrepreneurial careers because of financial reasons. In addition, 61 percent thought their entrepreneurial careers weree financially disappointing. Financial disappointment has been found to be the result of entrepreneurial failure in other studies of entrepreneurs (Brockhaus, 1985; Wicker & Conn, 1990). The nature of exit from an entrepreneurial venture would clearly affect the financial well-being of the entrepreneur. If the exit was as a result of a merger, takeover, or sale of the business, finances may be more positive than if the exit was due to bankruptcy or some other failure of the business. But there is more to perceptions of financial well-being following entrepreneurial failure than simply the absolute level of finances after failure.

If personal financial gain was a primary consideration for beginning a business venture, then not attaining that goal would be more devastating to the entrepreneur than if it was a negligible consideration. How long the entrepreneur is willing to wait for success may be another determinant. Is the entrepreneur patient enough to wait for long-term results in the light of short-term disappointments? Cooper, Folta, Gimeno-Gascon, and Woo (1992) actually showed the power of entrepreneurial attributions by showing that attributions affected the outcome of the venture (not simply the post-definition of the experience as we hypothesize). They found that that firm survival was significantly determined by the entrepreneur's personal expectations of success. If entrepreneurial firm performance fell short of a personal threshold, continuing the venture did not provide the expected benefits to the entrepreneur so the decision to exit was more likely.

If personal expectations influence perceived entrepreneurial outcomes (Cooper et al., 1992; Naffziger, Hornsby, & Kuratko, 1994), how may expectations vary with entrepreneurs? Though no research has specifically addressed this question, Ronstadt's (1984) descriptive study of 94 ex-entrepreneurs did indicate that "ex-entrepreneurs clearly had more enterprising initial goals when defined in terms of sales and profit objectives compared to practicing entrepreneurs and nonstarters" (p. 449).

Since Ronstadt (1984) indicated the likelihood of initial financial expectations being greater for entrepreneurs who had failed, the perceptions of their financial outcomes after the failures may be influenced by these high expectations. An entrepreneur's perception of financial well-being after a venture failure may also be influenced by the events that took place while the business was operating and what meaning is attached to these events, in essence, causal explanations or attribution. It cannot be said that all outcomes will be identical for all entrepreneurs who start a venture and fail. Part of the variance may lie with perceptions and the meaning attached to those perceptions.

Career Opportunities and Risks

What career risks lie on the entrepreneurial career path? Does starting one's own business and then failing in that venture place the individual in a disadvantaged position to reenter the job market or to gain support for another venture? Does the entrepreneur who has failed attempt again to become committed to another venture idea?

The research on entrepreneurs exiting their businesses has concentrated on the characteristics of these individuals and what happens next in their lives. Ronstadt (1981, 1982, 1984, 1986) found entrepreneurial careers to last the longest when entrepreneurship was chosen as a first career versus entering later in life. Younger entrepreneurs were associated with staying in the career field rather than exiting and working for someone else. Ronstadt's rationale was that younger individuals may have fewer opportunities available, be less risk sensitive because of experience, and have different aspirations than older individuals starting a business. He found the longer the entrepreneurial experience and the fewer career exits, the greater tendency to start additional ventures.

Though the professional risks may be perceived as being minimal by some, for others, the perceived risk of entrepreneurship may be greater. The differences may lie in how the entrepreneur perceives the entrepreneurial experience. And these differences may be explained by differences in attribution explanatory style.

Family Relations

The time, energy, and emotional commitments demanded by a business venture often come at the expense of family relationships (Ronstadt, 1985). A strong family support system is believed to be an asset to an entrepreneur (Brockhaus, 1985; Harrell, 1994). Family relationships may come under significant strain when an entrepreneurial venture does not meet with success.

It is easy to understand why family relationships may cause and be strained by entrepreneurial activities. The financial burden may destabilize family income and family lifestyles

may have to be compromised. Commitment to employees and investors, and increased work hours can also create stress and anxiety. With the time commitment that is necessary to start and build a business, time with family appears to be compromised.

Psychological Well-Being (Self-Esteem)

The total immersion of the entrepreneur into an entrepreneurial business venture takes its toll on the individual (Stolze, 1994). The long hours of work, the weight of decision making, the financial commitments, not knowing the ultimate outcome (success or failure) creates a state of "entrepreneurial terror" (Harrell, 1994). This terror is clearly seen in light of entrepreneurial failure. The failure experience puts an individual's sense of self and values at risk (O'Connor & Wolfe, 1987). Failure forces the entrepreneur to deal with self-confidence, internalization of the failure, and ramifications with one's personal life. Liles (1974) refers to this risk area as psychic well-being. Numerous studies have dealt with the impact of stressful events on the life of an individual: self-esteem and private vs. public failure (Baumeister, 1982; Baumeister & Tice, 1985; Brown & Gallagher, 1992; Greenberg & Pyszczynski, 1985), and self-esteem and emotional reactions to success and failure (Brown & Dutton, 1995).

Self-esteem protection or enhancement after failure has also been found to be aided by self-handicapping, a strategy used to discount or augment the attribution of causes for success or failure (Arkin & Baumgardner, 1985). It has been found that individuals with high self-esteem are better protected against negative effects of failure (Rhodewalt, Morf, Hazlett, & Fairfield, 1991; Tice, 1991). Based on the research in this area, how the cause of the failed venture is explained should influence the effect on self-esteem. It was expected that entrepreneurs who have failed in a business venture and who maintain their high levels of self-esteem, will view the outcomes of those failed ventures in a more positive light.

ATTRIBUTION THEORY

Attribution theory describes the hypothesized process by which individuals interpret events and behaviors and make causal explanations for answering why things happen. Attributions allow allowing individuals to predict and control their environment (Heider, 1958; Kelley, 1967, 1973). The consequences of attributions have an impact on the perceivers' subsequent thoughts, emotions, and behaviors (Harvey & Weary, 1984).

To summarize a wide body of social psychological literature: When people see their personal characteristics play a primary role in attributing success and failure, ability or the lack of it influences the causal explanation. If people see personal characteristics as fundamental and they see individuals fail at endeavors, they attribute the failure to the difficulty of the situation rather than individual ability. If success is attained by most, the situation or task is perceived as being relatively easy and does not require great ability. On the contrary, when few individuals attain success or when failure results for only a few, ability becomes more influential in attributing an explanation. When failure is the exception, the lack of ability becomes a more likely causal explanation.

At the other end, people might attribute success and failure to environmental factors; things outside their person. An individual may postpone an endeavor until the environmental conditions are more favorable, then the individual would take advantage of the opportunity presented hoping that will lead to a greater likelihood of success. Since the conditions can be favorable or unfavorable and dependent on chance because of their instability, luck enters into the explanation when it is linked with the consistency of the individual's performance. Consecutive failures followed by a success, or failing once in a series of successes, denote inconsistency in performance. This inconsistency would be attributed to the luck factor while consistent performance is more likely attributed to ability or the lack of it (Weiner and Kukla, 1970).

Attributions are defined by distinctiveness, consistency, and consensus. Distinctiveness refers to the uniqueness of the entity; the behavior or impression is present when the entity is present and does not occur in its absence. Consistency over time and modality refers to the response being the same whether the time element is different or the entity's form varies. Other individuals in the same environment exhibiting the same behavior or impression are reflective of the consensus criteria.

The first personality construct hypothesized to define the individual's tendencies to make attributions was locus of control (Rotter, 1966). Individuals who have a tendency to describe events as caused by them were said to have an internal locus of control while those who believed that events happened because of fate luck or powerful others were said to have an external locus of control orientation. (Lefcourt, 1966; Rotter, 1966). Entrepreneurial studies involving locus of control have not always supported the construct in attributing success or failure (Begley & Boyd, 1987; Brockhaus & Nord, 1979; Chebat, Zuccaro, & Filiatrault, 1992; Duchesneau & Gartner, 1990; Hull, Bosley, & Udell, 1980). It appears that more than one dimension may provide a greater understanding of how entrepreneurs attribute causality to events that occur during their entrepreneurial ventures and how this explanation may influence perceived outcomes if failure results.

Attributional Explanatory Style

Although individuals may offer an array of reasons for why something has happened, good or bad, attribution theorists argue that these causes may be described by dimensions that create an overall explanatory style. Particularly with uncontrollable events, explanatory style is relatively stable and habitual throughout adult life (Burns & Seligman, 1989; Peterson, Maier, & Seligman, 1993). A contrary opinion, though, is that individuals may not be consistent in their explanations of events across a variety of situations (Weiner, 1985, 1986). Situational factors, such as achievement outcome, can influence the causal attributions made by the individual. Therefore, how individuals dimensionally categorize these causes, rather than the inherent causes themselves, may influence cognitive, affective, and behavioral consequences.

Seligman and his colleagues (Abramson, Seligman, & Teasdale, 1978; Maier & Seligman, 1976; Peterson et al., 1993; Peterson & Seligman, 1984) incorporated the previous work on causal attribution and social learning with their reformulated theory of learned helplessness. The learned helplessness model hypothesized how individuals respond to uncontrollable events and basically

asserts that a state of helplessness results when exposed to unsolvable and uncontrollable problems. When it is apparent that outcomes are uncontrollable, behavior is affected on three levels–cognitive, emotional, and motivational (Maier & Seligman, 1976). If the individual expects (learns) that outcomes are uncontrollable, the depressed effect influences the motivation to initiate other responses; the experiences can have debilitating effects on subsequent responses.

Abramson et al. (1978) noted the limitations with the learned helplessness hypothesis and specifically wanted to address the conceptual problems of (1) universal versus personal helplessness situations (are outcomes uncontrollable for all or for only some); and (2) when helplessness may be a general rather than specific state (is helplessness generalized to other expectancies or specific to the situation). Addressing these conceptual deficiencies laid the groundwork for the development of their three dimensions of causal explanation: internality (internal/external), stability (stable/unstable), and globality (global/specific).

Another body of literature that has relevance to formulating the dimensions of explanatory styles is that concerning attribution in achievement situations (Weiner, 1979, 1985, 1986; Weiner, Frieze, Kukla, Reed, Rest, & Rossenbaum, 1971; Weiner, Heckhausen, Meyer, & Cook, 1972; Weiner & Kukla, 1970). Weiner's attribution model proposes that the causal dimensions mediate the effects of the causal attributions on success and failure outcomes. The dimensional properties of attributions are viewed as determining such consequences of the attribution process as affective reactions and future expectations of success. Weiner presented three dimensions based upon attributions of causality for success and failure: locus of causality, stability, and controllability.

The previous work done in the areas of attribution theory and explanatory style have provided the foundation for the four dimensions of explanatory style used in this research: internality (internal/external), stability (stable/unstable), globality (global/specific), and controllability (controllable/uncontrollable). This paper sought to investigate attributions in a highly significant achievement event for business individuals, the entrepreneurial venture. The risks that an entrepreneur assumes are consequential. If failure results, how the entrepreneur interprets the failure and makes attributions concerning its causes, may likely impact the individual's personal and professional life.

Internal-External Dimension

"When people believe that outcomes are more likely or less likely to happen to themselves than to relevant others, they attribute these outcomes to internal factors. Alternatively, persons make external attributions for outcomes that they believe are as likely to happen to themselves as to relevant others" (Abramson et al, 1978, p. 52). Success or failure can be attributed to the power and ability of the individual and/or to the context of the situation, specifically, the difficulty of the task. If the individual believes that few individuals experience either success or failure with the endeavor, then when an individual does succeed or fail, it may be attributed to one's ability or the lack of it because the endeavor was a difficult one. Contrary, if the rate of success is high, the endeavor must have been relatively easy and did not really take any great ability. Following this logic, then when most individuals fail, the endeavor is perceived as being very difficult. The ability of the individual

is not in question and there must be some external reason (environmental or situational factors) for the failure. It would be irrelevant who was in that situation, the outcome would be similar for all.

In achievement-oriented situations, self-esteem is protected in situations involving failure and ability attributions are discounted (Tice, 1991; Weiner & Kukla, 1970) and ability attributions are augmented when there is success (Rhodewalt et at., 1991; Tice, 1991; Weiner & Kukla, 1970). The individual does not blame oneself when failure has occurred. There is still the belief that the next task can be accomplished. If it is thought that another individual would have possibly made the same or similar response to the situation, then, that individual would be more likely to make an external attribution for perceived control.

In these situations, since ability attributions are discounted, it seems likely that an entrepreneur would make an external attribution with a failed business venture. The external attribution would provide impetus for the entrepreneur to proceed with another startup while keeping self-esteem intact or enhancing self-esteem. If ability is not in question and self-esteem is still present, these positives may likely transfer to other factors with the failed venture—family relations and financial well-being.

It is difficult to separate finances and family from the entrepreneurial venture (Dyer, 1992). If the entrepreneur starts another venture, then financial well-being may be less affected by the failure, or at least not in a debilitating manner. Since external attribution transfers the cause of the failure to other situational factors or implies that what happened is common for most people in that situation, there may be a higher tolerance level within the family and a more supportive environment for the entrepreneur. Even though failure of the business occurred, family relations may not suffer. Contrary to that thought, if the entrepreneur thought he/she was the cause of the failure (based upon lack of ability rather that an external situational factor), the "it's all my fault" rationale could transfer to the home and family setting. Anything wrong that happened within the family would be internalized by the entrepreneur and self-blame would result.

If the entrepreneur fails in the venture but has attributed the cause of the failure to external situations, it is most likely the entrepreneur will not perceive it as the end to the entrepreneurial career, but rather as a positive learning experience. Depersonalizing the experience will lessen the fear that causes immobility. The likelihood of the entrepreneur starting another venture should be greater.

Stable-Unstable Dimension

The stability dimension addresses the issue of whether an event is a general rather than specific state (Abramson et al., 1978). The theory's premise is that an individual learns in uncontrollable situations that outcomes are response noncontingent. Consequently, the individual expects future response-outcome noncontingency to be formed, which makes new responses difficult to learn and inhibits the motivation to continue at the task or related task. This reflects stability, which has a recurring element; whereas, unstable factors have an intermittent tendency.

Attribution to stable factors supports the chronicity of the deficits the individual feels in present and future situations. This dimension is easily applied to an entrepreneurial situation. If an entrepreneurial venture fails, there are many plausible attributions. The entrepreneur may feel the

appropriate skills were not possessed to start the venture and manage it successfully; if another venture was started, the same outcome is likely (internal-stable). Not as much time was put into the venture as was deemed necessary; the entrepreneur knows better for the next time that starting a business is a major time commitment (internal-unstable). Success does not come to the majority of entrepreneurs. It is an extremely difficult undertaking; that is why the failure rate is high (external-stable). A key supplier went out of business so the needed component parts were no longer available at the price and quality level needed; this happened by chance and was not able to be predicted (external-unstable). Those scenarios that reflect the stability dimension would have a negative impact on present and future outcomes, there is a carryover effect.

Why would the entrepreneur try again if failure is inevitable? If failure is inevitable, self-esteem is lowered; self-worth and self-confidence are jeopardized. Since self-esteem is not enhanced, it becomes a chronic issue. Conversely, instability should leave self-esteem intact. The entrepreneur feels the failure was situational and the likelihood of the failure's cause happening again is not likely. Even if the entrepreneur attributed the cause to be internal, yet situational, the impact on self-esteem would be lessened.

The perception of continual failure with this type of venture may also negatively impact the entrepreneur's financial well-being. With stability, the entrepreneur may perceive more long-term financial effects associated with the failure rather than seeing it as a short-term setback. With instability, there is optimism. The entrepreneur may have developed financial contacts that could assist in the next venture; therefore, the financial outlook is not as bleak. Or, even though the entrepreneur realizes a risk was taken financially with the venture, since the cause of failure will not happen again if another venture is started, the entrepreneur's financial position may not be perceived to be so negative.

Relationships with family members also can be tested in times of failure. It is difficult to keep the business and family worlds separate, they are intertwined. The degree of emotional support, the level of communication, and the restrictiveness of family activities can all be affected. With venture failure, a stable attribution concerning the cause should lead the entrepreneur into feeling that any stress placed upon the family will follow if another venture is started. The emotional support will not be better, the communication among family members will not improve, and the amount of time that is available to spend with family will most likely not increase with starting over. Even if another venture is not in the entrepreneur's sight, the retrospective view of the experience may lead to thoughts that the failed venture destroyed the family's fabric. Antithetic to this thinking, instability has a transitory inference. The cause is only situationally-specific and once that is removed, the entrepreneur may feel "things will get back to normal." Therefore, family relations may not be negatively affected. The entrepreneur may even look back on the experience and say "we had some tough times, but it really pulled us together", family relations may have even improved.

The basis behind the stability dimension is that the outcome (in this case, failure) will occur in a similar situation no matter what the individual does. Outcomes are not contingent on the individual's behavior. With this premise, an entrepreneur will not start another venture because if the cause is perceived to be stable, it would be thought that failure would most likely occur in the

next venture no matter what was done differently. The reverse would be likely for an unstable attribution.

Global-Specific Dimension

In refining the possible attributions for outcomes, Abramson et al. (1978) proposed a third dimension, global-specific. This dimension addresses the generality issue and has an orthogonal relationship to the internality and stability dimensions. Global attributions affect a diversity of outcomes whereas specific attributions do not. Helplessness generalizes to dissimilar situations when an individual makes a global attribution for the uncontrollable events in the original situation. The implication is that the outcomes will be independent of the individual's responses. Specific attribution implies that helplessness generalizes only to new situations that are similar to the original. Based upon the individual's responses, the outcomes need not be the same when the situation changes (Alloy, Peterson, Abramson, & Seligman, 1984; Anderson, Anderson, Fleming, & Kinghorn, 1984; Mikulincer, 1986).

The generality of the deficits will depend on the globality of the attributions. Adding this dimension to the internality and stability dimensions can provide insight into the explanations entrepreneurs may have for failure of an entrepreneurial venture and how that failure may affect other outcomes. For example, venture failure may be attributed to lack of overall intelligence (internal, stable, global) versus lack of ability for this particular type of business (internal, stable, specific). If the entrepreneur attributes lack of intelligence to the failure (global), then the entrepreneur would most likely not start another venture (irrespective of the type of venture) because the globality dimension generalizes the failed outcome to dissimilar situations. Because of this generalizing to dissimilar situations, the entrepreneur may feel that overall his or her career outlook is less positive. The failure may be seen as a disadvantage in regards to reentering the employment circle and that it was a setback concerning career development. If the cause of the failure was perceived as specific to that situation, the entrepreneur may think the experience provided a good learning opportunity that could further advance the career. The lessons learned would enhance future job prospects.

Self-esteem becomes lowered with globality because the entrepreneur's thoughts fall along the lines of—"No matter what I may attempt, I will fail." Helplessness is present and it is difficult to maintain a sense of self and value. These feelings can transcend to other areas of the entrepreneur's life.

Since the premise of globality is that global attributions affect a diversity of outcomes, this generality for failure outcomes may also affect the entrepreneur's views of personal finances and the relationships with family members that resulted from the failed venture. Any loss of money with the venture could be "magnified" in the entrepreneur's mind and could be interpreted as financial ruin. The entrepreneur may also become distant from the family because of this helplessness deficit. Communication lines may be weakened, it may be difficult for family members to show emotional support because they feel no matter what is said or done will be to no avail, and overall family relations will be under more strain. The generality of the failed outcomes may seem to produce a compounding effect for the failed entrepreneur that could result in long-term debilitating effects.

Controllable-Uncontrollable Dimension

Perceptions of controllability and uncontrollability are believed fundamental in determining the effects of failure (Abramson et at., 1978; Alloy et al., 1984; Peterson et al., 1993; Peterson & Seligman, 1984). A controllable outcome is when the occurrence of the outcome is related to the individual's response; if the probability of the outcome is the same whether the response is made or not, the outcome is uncontrollable.

When individuals learn that outcomes are uncontrollable, deficits result in three areas—cognitive, motivational, and emotional. When an individual learns that an outcome is uncontrollable, it hinders learning any alternative responses (cognitive deficit) that could produce a different outcome. The uncontrollability of the outcome can inhibit the drive to initiate any responses (motivational deficit) because the individual sees the outcomes as incapable of being altered. A depressed effect (emotional deficit) results knowing that outcomes are uncontrollable.

When an entrepreneurial venture results in failure, how the entrepreneur perceives the level of controllability of that failed outcome may create a state of learned helplessness for the entrepreneur. The more controllability the entrepreneur perceived about the venture outcome, the more negative may be the effect concerning the areas of risk undertaken. For example, if the family played a crucial role in its sacrificing of time and money for the venture and the entrepreneur did not put forth the needed optimum effort in order to insure a greater likelihood of success, family relations may suffer. Too, financial status may seem worse and the entrepreneur's self-esteem may be lowered. If the entrepreneur perceives that decisions were not made that should have been (controllable) and that this is what had the major impact on the financial status of the firm and the family's financial status, these outcomes could be perceived as more serious because the entrepreneur could have done something about them but did not. Lowered self-esteem would most likely result because personal blame for inaction is assigned.

On the contrary, failure of the venture by a factor attributed to be outside the control of the entrepreneur may leave family relations, financial status, and self-esteem intact. Irrespective of what actions the entrepreneur may have taken, the results of the situation would have been the same. It is difficult to be blamed for something when the individual does not have control. This lack of controllability may also not inhibit the entrepreneur from starting another venture or going into another line of work outside entrepreneurship because the occurrence of failure was not related to the entrepreneur's response (actions).

Overall Explanatory Style

An individual may have an overall explanatory style when attributing causes of failure (Abramson et al., 1978; Alloy et al., 1984; Burns & Seligman, 1989; Nurmi, 1992; Peterson & Seligman, 1984) and success (Nurmi, 1992). When uncontrollable bad outcomes are explained by internal, stable, and global causes, a helplessness or depressive state results. This affects the individual's behavior in similar and dissimilar situations. Antithetic to this, when uncontrollable bad outcomes are explained by external, unstable, and specific causes, the individual proceeds

feeling that the responses made which resulted in the bad outcome were situation specific and do not have characteristics of chronicity and generality.

It is expected that an individual's explanatory style will help explain outcomes in the failure of an entrepreneurial venture. The dimensions of external, unstable, specific, and uncontrollable should be the more likely explanatory style for those entrepreneurs who have maintained a positive self-esteem, perceive their financial well-being and family relations to have not been negatively affected by the venture failure, and who perceive career opportunities to still be available to them. Failure has not had such a perceived negative impact on the risks that were undertaken with the entrepreneurial venture as influenced by the entrepreneur's attributional explanatory style.

IMPLICATIONS FOR PROFESSIONAL PRACTICE OR APPLIED SETTINGS

Businesses are born and businesses die. As the title of Brockhaus' (1985) work on ex-entrepreneurs is so aptly put, "Is There Life After Death?" Being an "ex" does not have to be seen as having only negative connotations. Many entrepreneurs who have left one venture, whether by choice or not, proceed to undertake another. They do not attribute failure to themselves as much as they do to situational factors. They persevere, become resilient, and take their lessons learned into the next venture.

Learning about the next chapter in the ex-entrepreneurs' lives has had problems because of the difficulty in locating them after the venture failure. This should not deter the continuance of this area of research. Rather this ". . . supports the need for continued efforts to better research the experiences of ex-entrepreneurs after they cease doing business. In this way, future ex-entrepreneurs can better assess the consequences of failure" (Brockhaus, 1985, p. 476).

Of what value is there in understanding how entrepreneurs or ex-entrepreneurs attribute the causes of a failed venture? First, it would enable business counselors to counsel new entrepreneurs (understanding what their general tendencies are) to go in with their eyes open with no false expectations. A business can start with much aforethought and planning or hastily with the generally misguided thoughts that money can be made quickly and the entrepreneur can have an easier schedule than with current employment. With both of these instances, often the entrepreneur does not assess all that is at risk besides personal time and money. Entrepreneurs, in creating the venture, indeed assume a level of risk, but often do not perceive to be taking such great risks because they believe so intensely in their ideas and that they will succeed. Yet, the fear of failure and its resultant consequences are ever present in the mindsets of entrepreneurs (Harrell, 1994). Running a business affects the family, self-esteem, and the individual's career path. Knowing one's attributional explanatory style will provide insight into what the responses may be after venture failure concerning the impacts on other aspects on the entrepreneur's life. Would-be entrepreneurs could then envision the venture process from beginning to end and be aware of the consequences, personally and professionally, of a possible venture failure.

Second, when a venture fails the entrepreneur may decide to proceed with another venture startup. Knowing how explanatory style affects determining causation for events could improve decision making and thereby, new venture survival. Erroneous attributions can lead to actions that

fail to correct the problem(s) in another entrepreneurial situation. In fact, those actions could even intensify the problem. Considering the limited resources with most venture startups (whether that be financial, time with family, or the expertise gained from managing a previous business), inaction or taking the wrong action could lead to failure for the first venture and continued failure for subsequent ventures. For example, an entrepreneur may attribute the business failure to an external cause, such as a new competitor, rather than a poor service strategy. If the entrepreneur starts another venture, irrespective of the business type, poor service may continue to be provided to the customers that may result in that business failing, too.

Third, as educators, as consultants, and as policy advisors, helping potential entrepreneurs to envision the holistic process, rather than just the 4 Ps of marketing, would enable a startup decision to have a broader-based foundation. The decisions made and actions taken during the business venture have far reaching effects beyond the scope of the business. Rather than always taking a retrospective look, attributional explanatory style may provide a crystal ball look into how outcomes may be perceived if a venture does not succeed; it can imply how the entrepreneur may react if the venture fails. Would-be entrepreneurs can learn to make the attributions that would inoculate them against the effects of failure. In essence, attributions may be taught so there would be learned optimism.

Is there life after death of an entrepreneurial venture? For most entrepreneurs the answer is typically yes. But researchers have generally assumed the entrepreneurial venture itself defines all that there was to know. Attributional explanatory style may allow us to predict and explain the events and effects of entrepreneurial success and failure and may lead to a new line of research looking at what happens after the success and failure of a venture.

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UNDERSTANDING THE FINANCIAL EDUCATIONAL NEEDS OF ENTREPRENEURS: A SURVEY OF ENTREPRENEURS AND FINANCIAL ADVISORS

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ABSTRACT

Finance is a crucial topic for nascent entrepreneurs to study, as appropriate financial planning and management are essential for survival and success. The current study addresses 30 finance topics commonly taught in university courses. Both practicing entrepreneurs and various types of financial advisors evaluated each topic regarding its level of importance for inclusion in entrepreneurial finance courses. All 30 topics were considered at least "fairly important" for inclusion by both groups. However, some important differences did emerge between the two groups. Entrepreneurs felt six of the topics are significantly more important than did the financial advisors. Financial advisors felt only one topic, forecasting and financial statements, to be significantly more important than did entrepreneurs.

INTRODUCTION

There has been a striking increase in the level of interest in entrepreneurship. A strong indicator of such interest is the unprecedented rise in the rate of new business formation. According to Stevenson (1999), the number of annual new business incorporations doubled from about 300,000 to over 600,000. This is mirrored by an explosive growth in the amount of capital committed to venture capital firms in the United States. Due to this dramatic upsurge in entrepreneurial activity, business schools across the nation are devoting more and more attention to the discipline of entrepreneurship. The Top 50 Entrepreneur-Oriented Universities, according to *Success Magazine* (2001), includes such names as Babson, DePaul, Cornell, MIT, Stanford, Columbia, to name a few.

As the number of entrepreneurship education programs has increased, so too has the number of business schools offering specialized courses in entrepreneurial finance. In recent years, a small number of new entrepreneurial finance texts have been published to support this nascent market. The increased attention paid to entrepreneurial finance appears justified, given the academic evidence that strong finance skills increase an entrepreneur's chances of business success (see, e.g., Ball and Shank, 1995, Envick, 1999, Gresham and Franklin, 1996, and Hood and Young, 1993). However, there is significant diversity in the topics covered by the existing entrepreneurial finance texts and no studies have investigated exactly which finance skills are most important for

entrepreneurial success. The purpose of this study is to gather evidence on which finance topics should be taught to entrepreneurship students, according to entrepreneurs and their financial advisors.

LITERATURE REVIEW

A large number of academic studies have investigated ways to improve introductory corporate finance courses and finance curriculum in general. Mindful of the limited amount of material that can be covered in one course or in one academic major, some earlier researchers focused on identifying the most important finance topics. For example, Cooley and Heck (1996) surveyed finance professors to identify which topics were viewed as most important to teach in introductory (corporate) finance courses. McWilliams and Pantalone (1994) surveyed financial executives of large corporations to identify important courses to offer to finance majors.

Related studies emphasized the differing perspectives of academics, practitioners, and students. DeMong, Pettit and Campsey (1979) surveyed financial executives and academicians to learn the differing perceptions of what skills finance majors most need. Graham and Krueger (1996) compared the opinions of chief financial officers and finance students regarding the importance of various skills to finance majors. Hall and Williams (2001) compared the views of chief financial officers and finance students regarding the importance of financial and non-financial objectives. Perhaps one of the more interesting studies was Gup (1994), who asked finance professors and chief executive officers (at mostly larger corporations) to identify the most important topics to teach in an introductory finance course. The responses from finance professors indicated that the following topics, listed from most to least important, are the seven most important: (1) present value, (2) capital budgeting, (3) the capital asset pricing model, (4) capital structure, (5) valuation, (6) accounting topics, and (7) cost of capital. The responses from CEOs indicated that the most important topics, in order, are: (1) present value, (2) accounting topics, (3) capital structure, (4) capital budgeting, (5) cost of capital, and (6) the capital asset pricing model. (Valuation did not make the CEOs' top seven list and only six topics were reported for CEOs.) Gup's results suggest that CEOs placed a higher value than did finance professors on accounting topics and cost of capital. CEOs placed a lower value on valuation and the capital asset pricing model.

While some research has identified important topics to teach finance students in specialized areas (e.g., Phillips, 1997, surveyed corporate treasurers to see what skills are most needed in this specific profession), no published studies (to our knowledge) have identified the most important finance topics for entrepreneurs. Because entrepreneurial finance is an emerging "sub-discipline," empirical evidence on entrepreneurs' special needs could be helpful to those structuring courses or writing texts for this area of finance.

The current study furthers the process of identifying appropriate content for entrepreneurship curriculum by focusing specifically on the topic of finance. Thirty topics are included and can be seen in Tables 1 and 2. The authors recognize that all 30 topics are important, however we believe it is essential to uncover which topics are most important to include in entrepreneurial finance courses.

METHODOLOGY

A nonprofit business organization, which primarily focuses upon promoting entrepreneurial activities, was utilized as the target pool for participants. This organization consists of entrepreneurs and financial advisors to entrepreneurs, among other types of members. Nine hundred and thirty five participants were targeted, which is the entire listing of members the authors believed to own and operate their own businesses or are financial advisors. Two hundred and fifty-six surveys were returned, resulting in a 27.4% return rate. Of the returned surveys, 195 were usable (76%). Of the 195, 103 were entrepreneurs and 92 were financial advisors. The most common reason a survey was not usable was because the respondent did not fit into either category, entrepreneur or financial advisor (79%). Other reasons include the survey being done incorrectly (only 3%) and the survey being returned because of an incorrect contact person or address (18%).

The survey asked participants to rate the importance of each finance topic on a 7-point Likert scale (1 = not important at all; 2 = slightly important; 3 = fairly important; 4 = moderately important; 5 = very important; 6 = extremely important; 7 = absolutely essential). The opinions of entrepreneurs were used because of their experience in dealing with the finance function of operating a business. Financial advisors were used because finance is their area of specialization and because these particular advisors provide services to entrepreneurs. The subcategories of financial advisors include venture capitalists (10), bankers-lenders (26), investment bankers (7), angels (8), accountants/CPAs (24), personal financial advisors (9), and other (8).

Mean scores were used to rank the finance topics from most important to least important according to each group. The data was also analyzed using ANOVAs to determine if significant differences exist between the opinions of entrepreneurs and financial advisors for each of the topics.

RESULTS

Table 1 reports the mean score rankings of all 30 finance topics according to entrepreneurs. All topics received mean scores higher than 3, which implies all topics are considered at least fairly important. The highest ranked topic is "cash management and projecting cash flows", with a mean of 6.505. The lowest ranked topic is "portfolio theory", with a mean of 3.549.

Table 1: Entrepreneurs' Mean Score Ranking of Finance Topics

Finance Topic	Mean	SD
Top One-Third		
Cash management and projecting cash flows	6.505	.839
Forecasting and financial statements	6.194	1.076
Financial statement and financial ratio analysis	6.049	1.175
The relationship between outside investors and the entrepreneur	6.020	1.081
Overview of the major business financing sources and methods	5.745	1.096
Receivables management	5.563	1.288

Table 1: Entrepreneurs' Mean Score Ranking of Finance Topics		
Finance Topic	Mean	SD
Time value of money	5.505	1.385
Personal finance and the entrepreneur	5.461	1.539
Project evaluation approaches	5.456	1.219
Selecting the form of business	5.301	1.335
Middle One-Third		
Capital structure theory and liability management	5.294	1.240
Inventory management	5.097	1.411
Placing a value on a closely held or private firm	5.069	1.154
Harvesting the investment	5.050	1.366
Small business profiles	4.912	1.387
Hybrid business financing methods	4.863	1.428
Financial markets and institutions	4.825	1.438
Popular finance and accounting software	4.784	1.520
Lease versus buy decisions	4.534	1.305
Mergers and acquisitions	4.485	1.236
Agency theory	4.485	1.376
Bottom One-Third		
Debt contracts	4.382	1.422
Options and option pricing theory	4.107	1.614
Valuing stocks and bonds	3.835	1.245
Efficient capital markets hypothesis	3.762	1.365
Detailed analysis of debt contracts	3.706	1.519
International finance	3.621	1.299
Dividend policy	3.598	1.402
Bankruptcy, liquidation, and reorganization	3.573	1.325
Portfolio theory	3.549	1.533

Table 2 reports the mean score rankings according to the financial advisors. Like the scores given by entrepreneurs, all topics received mean scores higher than 3, implying all are at least fairly important to consider. The highest ranked topic, according to financial advisors, is "forecasting and financial statements", with a mean score of 6.500. The lowest ranked topic is "detailed analysis of debt contracts", with a mean score of 3.230.

Table 2: Financial Advisors' Mean Score Ranking of Finance Topics		
Finance Topic	Mean	SD
Top One-Third		
Forecasting and financial statements	6.500	.763
Cash management and projecting cash flows	6.489	.734

Table 2: Financial Advisors' Mean Score Ranking of Finance Topics		
Finance Topic	Mean	SD
Financial statement and financial ratio analysis	6.261	.875
Overview of the major business financing sources and methods	5.598	1.156
Receivables management	5.598	1.130
The relationship between outside investors and the entrepreneur	5.575	1.235
Time value of money	5.457	1.362
Inventory management	5.396	1.273
Project evaluation approaches	5.374	1.235
Capital structure theory and liability management	5.356	1.285
Middle One-Third		
Personal finance and the entrepreneur	5.102	1.494
Placing a value on a closely held or private firm	4.977	1.446
Financial markets and institutions	4.879	1.444
Selecting the form of business	4.826	1.419
Harvesting the investment	4.804	1.549
Hybrid business financing methods	4.651	1.317
Popular finance and accounting software	4.568	1.560
Small business profiles	4.391	1.466
Debt contracts	4.379	1.383
Mergers and acquisitions	4.367	1.043
Bottom One-Third		
Lease versus buy decisions	4.382	1.222
Valuing stocks and bonds	4.089	1.435
Agency theory	3.879	1.476
International finance	3.769	1.257
Options and option pricing theory	3.659	1.424
Bankruptcy, liquidation, and reorganization	3.626	1.217
Portfolio theory	3.500	1.537
Efficient capital markets hypothesis	3.483	1.470
Dividend policy	3.391	1.333
Detailed analysis of debt contracts	3.230	1.178

As one can see by comparing Tables 1 and 2, the opinions of entrepreneurs and financial advisors are similar, however, there are some significant differences that must be addressed. Table 3 summarizes significant statistical differences found between the mean scores of entrepreneurs when compared with the mean scores of financial advisors. Only those topics where significant differences were found are reported. There are seven, six of which entrepreneurs found significantly more important and one that financial advisors found significantly more important.

Table 3: Significant Differences Between Entrepreneur and Financial Advisor Rankings				
Finance Topic	Ent. Mean	FA Mean	F-value	*p-value*
Forecasting and financial statements	6.194	6.500	2.009	.0035**
The relationship between outside investors and the entrepreneur	6.020	5.575	6.973	.0090**
Selecting the form of business	5.301	4.826	5.796	.0170*
Small business profiles	4.912	4.291	6.289	.0130*
Agency theory	4.485	3.879	8.724	.0035**
Options and option pricing theory	4.107	3.659	4.143	.0423*
Detailed analysis of debt contracts	3.706	3.230	5.642	.0185*
* = significant @ .05 ** = significant @ .01				

CONCLUSIONS

The evidence from this study suggests that most of the thirty finance topics identified are important for entrepreneurs. Entrepreneurs rated twenty-three of the thirty topics as at least "moderately important" for entrepreneurial success. Financial advisors to entrepreneurs rated twenty-two topics as at least moderately important. Although entrepreneurs and financial advisors rated certain finance topics significantly differently, these two groups also showed remarkable agreement regarding the most important finance topics. Financial advisors valued "forecasting and financial statements" more highly than did entrepreneurs, but both groups viewed this topic as important. For many of the financial advisors surveyed, such as accountants, producing financial statements is their primary service. Perhaps it is not surprising that they ranked this skill highly.

A common theme from other significant differences revolves around the "behavioral" topics in finance. In general, entrepreneurs rated behavioral topics more highly than did financial advisors. For example, "the relation between outside investors and the entrepreneur" was deemed to be a more important topic by entrepreneurs. This finding may suggest that many entrepreneurs have had important conflicts with outside investors regarding the management and control of a new venture. Naturally, such conflicts would lead entrepreneurs to value this topic highly. Similarly, "agency theory," which focuses on the conflicts between owners and managers, was valued more highly by entrepreneurs. Entrepreneurs also valued "selecting the form of business" more highly than did financial advisors. Because the form of the business (i.e., sole proprietorship, partnership, limited partnership, corporation, etc.) drastically affects how power is shared and decisions are made in a new venture, the first-hand experience of entrepreneurs seems to lead them to value this topic more highly. Finally, entrepreneurs gave higher ratings to "small business profiles," "options and option pricing theory," and "detailed analysis of debt contracts."

Notwithstanding these statistically significant differences, entrepreneurs and financial advisors displayed a surprising consensus regarding the seven most important finance topics. Although the exact rankings within the top seven topics differed for entrepreneurs and financial advisors, these two groups agreed that the seven most important entrepreneurial finance topics are:

(1) cash management and projecting cash flows; (2) forecasting and financial statements; (3) financial statement and financial ratio analysis; (4) the relationship between outside investors and the entrepreneur; (5) overview of major business financing sources and methods; (6) receivables management; and (7) time value of money.

As noted, Gup (1994) reports on the most important introductory finance course topics, according to CEOs and finance professors. His respondents and the respondents from this study agree that present value (time value of money) is important and that accounting topics (which include topics (2) and (3) above) are important. However, respondents from the two studies do not agree on the importance of the other four most important topics. In particular, cash management and projecting cash flows appears to be much more important to entrepreneurs than to CEOs of larger corporations. Entrepreneurs likely value this skill because forecasting cash shortfalls is particularly difficult for new ventures and because new ventures have a more difficult time raising cash quickly to meet unexpected shortfalls. Overall, the evidence suggests that the topics previously identified as most important for introductory finance courses are not the most important topics for entrepreneurial finance courses. The evidence from this study should prove helpful to those prioritizing finance topics for entrepreneurship students.

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SUBMISSION INSTRUCTIONS

There are two approaches to submitting a manuscript to the double blind, peer refereed journal review process. First, one may submit a manuscript which has never been presented or published to an Allied Academies Conference as an awards consideration paper. Please note that the Internet Division option ensures that physical attendance at a conference is not required. The second approach, which is required if a manuscript has been presented at a previous conference, is to submit a paper for direct consideration. Both approaches are described below.

AWARDS CONSIDERATION APPROACH

The policy of the Allied Academies is to double blind, peer referee conference papers which are submitted for awards consideration. Currently, a maximum of 25% of conference papers will be selected by the referee panels for publication in one or another of the Allied *journals*.

Please note that the following instructions are not conference specific and you must look at the particular conference call page(s) for due dates and deadlines (www.alliedacademies.org). Failure to follow these instructions can result in your submission not being processed properly.

Step 1. Submit a One Page Abstract. To submit a manuscript for consideration for presentation at the Conference, you must first submit an ABSTRACT using ONLY the on-line Abstract Submission Form. These abstracts are considered by a committee which reviews the potential value of the paper and notification of the results are returned by e-mail to the author(s) within a few days.

Step 2. Submit the Full Manuscript for Awards Consideration. Award winners receive a plaque and the manuscripts will be published in the appropriate *journal.* Upon receipt of an acceptance letter from the Abstract submission, a full manuscript can be submitted for award consideration. At least one author per paper must register at the time of submitting the paper for award consideration and these manuscripts must be submitted via E-mail and be formatted in accordance with our award submission guidelines.

The file should be named according to the authorship and Academy, and signify that it is an award submission (i.e. Smith-James-White-aafs-award). The paper should be single spaced and include a title page that includes the contact information of the authors and the intended Academy. There is no page limitation on award submissions, but make sure that the file does not exceed 2 MB in size. You must include a cover page at the beginning of the document with the full names, affiliations, addresses, telephone and fax numbers, E-mail addresses of all authors, and the identity of the corresponding author.

Step 3. Submit the Registration and Scheduling Forms. As indicated above, registration is required before a manuscript can be considered for an award. An on-line Scheduling Form must be completed by every participant and one form for every paper. This form indicates when the presenting author intends to present the manuscript, or whether it is intended for the Internet Division. This form is required to prepare the schedule because the Allied Academies does not ASSIGN presentation times. It allows presenters to choose their own times.

Step 4. Submit the Proceedings Version of the manuscript. The file should be named according to the authorship and Academy, and should signify that it is a proceedings version (i.e. Smith-James-White-aafs-pro). The paper should also be formatted according to the Publication Guidelines.

Awards submissions will be double blind, peer refereed, and ranked by the committee. The top 25% of manuscripts in each area will be selected for publication and author(s) will receive official acceptance letters at the Conference. These papers will generally appear in the next regularly scheduled issue of the appropriate journal.

DIRECT SUBMISSION APPROACH

The policy of the Allied Academies is to double blind, peer referee papers which are submitted for direct journal consideration. Currently, a maximum of 25% of these papers will be selected by the referee panels for publication. This process follows the traditional approach and generally requires three to four months. Manuscript revisions are commonly required.

Manuscript submitted in this fashion may have been presented as conference papers in the past. If the manuscript was presented at an Allied Academies Conference, please so indicate in the e-mail letter accompanying the submission.

Step 1. Submit the article through the Direct Journal Submission process. All direct submissions should come through the Executive Director in the form of an E-mail attachment and be completed in accordance with our direct submission guidelines. These must be accompanied by the Direct Submission form. Upon receipt, the Executive Director logs in the manuscript, acknowledges receipt via e-mail, and forwards the manuscript to the appropriate Editor for referee purposes. The web page indicates the names of the Editors for each of the journals, and interested author(s) may correspond with an Editor at any time. However, the submission must flow through the Executive Director to ensure appropriate follow-up and control.

For purposes of the referee process, manuscripts do not have to prepared in any particular format. However, they must be accompanied by completion of the Direct Submission form which will serve as our tracking form. Direct submissions must be named as the Contact Author's last name and intended Journal (i.e. Smith-aafsj). The paper should be single spaced and include a title page that includes the contact information of the author(s) and the intended Academy. There is no page limitation on direct submissions, but make sure that the file does not exceed 2 MB in size. For blind review purposes, please remove all of the authors' information (names, affiliations, and E-mail addresses) from the paper so that only a title appears on the top of the first page (the cover page should contain all of the contact information). The Executive Director will forward the manuscript to the appropriate Editor for the referee process. Editors report back to the Executive Director, who will correspond with author(s) concerning the results of the referee process.

Step 2. Submit Accepted Manuscripts for Journal Publication. When a manuscript has been accepted for publication, author(s) will receive official notification by e-mail in pdf format. At that time, accompanying instructions outline the process which includes the resubmission of a properly formatted document, and completion of a permission to publish (because Allied Academies does NOT take an assignment of copyright). ALL authors must sign the Permission Form, and ALL authors must be, or must become, current members of the Academy which sponsors the journal in which the paper will appear.

WEBSITE INSTRUCTIONS

More complete instructions, together with Conference information, deadlines, and other pertinent information is displayed on the Allied Academies home page: www.alliedacademies.org. Questions or inquiries may be directed to the Executive Director at info@alliedacademies.org.

As the foregoing indicates, the Allied Academies has moved to an entirely digital process. Correspondence to authors is accomplished by PDF attachments which are prepared as official Allied Academies' documents. This process not only results in faster, more efficient communications, it creates a cost advantage for all parties.

PUBLICATION GUIDELINES

JoAnn C. Carland, Western Carolina University
James W. Carland, Western Carolina University

ABSTRACT

This document describes the preparation of manuscripts for publication in Proceedings and Journals published by the Allied Academies. To illustrate our needs, this manuscript has been prepared in the correct format. These guidelines are for publications only. We will accept manuscripts for REFEREE purposes in ANY format. Upon acceptance for publication, we will ask that you convert the manuscript to this model.

In following sections we will explore the various aspects of preparation for publication which will make including your manuscript in a given volume easier and faster. First, we discuss the appearance of the text, then citations, formulae, tables, figures and illustrations, and references. These sections are followed by specific guidelines for cases, including case description, synopsis and instructors' notes guidelines. The document then turns to the distinctions between proceedings and journal versions of manuscripts, and addresses length requirements. Finally, we discuss the availability of assistance for manuscript preparation through a publication service which we have arranged for authors with limited time and/or secretarial assistance.

INTRODUCTION

Our major problems come from authors attempting to make a manuscript visually attractive. That is a process which is handled by the publishers. We only need the content, and we need it as free from formatting as is possible. There are special problems associated with preparation in Word as it imbeds formatting commands in the text at multiple locations.

As you can see, we desire the manuscript to begin with a title which is in all caps, and followed by author(s) and affiliations. Use 12 point, Times Roman type (Note that this text is in 10 point) and let all headings throughout the manuscript be capitalized. Do not use honorifics or other details in the author(s) section. Do not center any of the text.

All manuscripts should begin with an Abstract EXCEPT CASES. For cases, there are special requirements which will be discussed in a later section. Italicize the abstract and limit it to 200 words. The heading should be the word, abstract, at the left margin, in all caps, without bolding, or font changes. Do NOT italicize the heading.

PREPARATION PROBLEMS

Many authors have explained to us that they have limited secretarial support, and simply lack the time to be able to prepare a manuscript in accordance with our guidelines. We have arranged for assistance for people in such circumstances. We can refer authors to a publishing service which will prepare manuscripts to these exact guidelines, regardless of the current appearance, word processor, or any other issue. The fee for this service varies, depending upon the complexity of the individual manuscript, but we can arrange a quote for the cost. This service can handle an entire manuscript, or simply a single figure, table, illustration, section of formulae, etc.

If you are interested in obtaining a quote, e-mail us at info@alliedacademies.org. We will reply with instructions as to how you can obtain a bid, and handle the preparation.

WORD PROCESSORS

For desk top publishing purposes, we utilize Word Perfect. However, we realize that many authors employ Word for preparation of their manuscripts. Converting from one format to another is NOT helpful. All manuscripts prepared in Word should be submitted in that format. We will handle the translation issues.

Macintosh word processors do present major problems. If a manuscript has been prepared by such a system, we ask that authors seek translation assistance in their universities. If that cannot be arranged, please contact the Executive Director by e-mail for more specific instructions.

In general, all versions of Word Perfect or Word are acceptable. However, other word processors are not acceptable. If you use some other software, either arrange for translation in your university or contact the Executive Director for assistance and more specific instructions.

BODY OF THE MANUSCRIPT

After the introduction, the body of the manuscript should follow. Use single spacing throughout, and remember not to change the type face, justifications, margins, or enter any other commands into the manuscript. Make all headings in capital letters, as shown. In most cases, there should NOT be subheadings. These simply breakup the flow of the manuscript and should only be used when the complexity of the exposition is high. In most cases, further headings are the only aspects required to keep the manuscript clear and clean. If you MUST use subheadings, they should be typed at the left margin with initial caps.

Do not double space between paragraphs, and indent the first sentence in each paragraph. As you can see from this example, you should double space around all headings. DO NOT USE A PARAGRAPH STYLE COMMAND. Indent the text with a tab. Style commands of any type remain in a document from the point of introduction, right through to the end. Since the Proceedings or Journal will be compiled into a single file, commands introduced in one manuscript affect all the others. For example, a FIRST LINE INDENT will affect every line in every new paragraph which follows, even if that paragraph begins with a TAB. Every style command functions that way. Please do not use them.

If you desire to use offset material in the text to highlight a list of items, a quote, a hypothesis, findings, or anything else, please remember that the PARAGRAPH STYLE COMMANDS should NOT be used. That means that you should NOT use bullets or automatically generated line or paragraph numbers. These stay in the document and affect all manuscripts which follow. To highlight information, just double space around it, and change its font to 10 point.

To highlight material, double space around it;
do not indent it;
drop its font to 10 point;
you can italicize it, if you desire;
and, we will put the material in a box to illustrate its importance.

If you really want the highlighted material to be NUMBERED, then you MUST put the material in a TABLE. We will talk about tables in a later section. At this point, please remember that if you allow the word processor to arrange the material in your text, it accomplishes this through a format command which will affect every manuscript behind yours in the volume which the publishers are producing. Even worse, conflicting commands in various manuscripts can cause major problems.

CITATIONS AND FOOTNOTES

We use APA style for all of our publications. The American Psychologist's Association Style Manual does not employ footnotes. Instead, a citation is handled in the body of the text (Carland & Carland, 1984), by putting the last names of the authors, followed by the year of the publication within parentheses. If there are multiple citations with a single sentence then separate the articles with a semicolon (Carland & Carland, 1984; Stewart, Carland & Carland, 1997). If the citation occurs at the end of the sentence, it should be INSIDE the period. Please note that the citations use ampersands, NOT the word, "and."

Please try NEVER to use FOOTNOTES. Word processors create footnotes according to a pattern which places them at the end of the document and counts from the first page of the document. That means that they blend between manuscripts. Since we use APA style, the only need for footnotes is more explanatory information. That can be inserted parenthetically (that is, one can insert explanatory information in a paragraph like this). If you MUST use a footnote, you MUST type in the superscript (like this [1]) and you MUST type the footnoted material at the END of your manuscript

under the heading ENDNOTES. (It can never appear at the bottom of a page because that would interfere with footers and pagination).

FORMULAE

One of the major problems which we face in publishing manuscripts is the appearance of mathematical formulae. Based on a new discovery and updated software, we can now use formulae created with formulae generators. Avoid using formulae in a sentence and be sure to define the variables in the formulae box along with the equation(s). You must AVOID USING SYMBOLS IN THE BODY OF THE TEXT. Refer to variables by name in the body of the text. If you feel that you must employ symbols, then use only English letters.

TABLES

Tables which contain only simple data are best handled if you just present the material with tabs separating it and let us create the table. Type it at the left margin, reduce its size to 10 point, and separate columnar data with tabs. DO NOT CHANGE THE TAB DEFAULT SETTING.

Table 1: Title of the Table

Column 1	Column 2	Column 3 *
Descriptive Information	Data	Data
More Descriptive Information	Data	Data

* Source of Data or Explanation of Data

When we find material like this, we will insert it into a table and display it in an attractive mode. More complex data should be prepared as a table in Word, or in Word Perfect. If your tables are too complex to fit on a single page in portrait mode, we can drop the font size to 9 point, but if you need to go lower than that, you need to insert the material into a table and we will try to handle the adjustments. For example, consider the following tabled material.

Table 2: Title of the Table

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10	Column 11	Column 12	Column 13	Column 14	Column 15
Descriptive Information	1.0	3.0	5.0	7.0	9.0	11.0	13.0	15.0	17.0	19.0	21.0	23.0	25.0	27.0
More Descriptive Information	2	4	6	8	10	12	14	16	18	20	22	24	26	28
Source of Data or Explanation of Data														

When we find a table like the preceding, we will convert it as follows into a more attractive mode and clearer interpretation. However, if you attempt to do the same thing, the formatting which you introduce in your efforts will make our job much more difficult.

Table 2: Title of the Table														
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10	Column 11	Column 12	Column 13	Column 14	Column 15
Descriptive Information	1.0	3.0	5.0	7.0	9.0	11.0	13.0	15.0	17.0	19.0	21.0	23.0	25.0	27.0
More Descriptive Information	2	4	6	8	10	12	14	16	18	20	22	24	26	28
Source of Data or Explanation of Data														

If the table is long, place it at the end of the text. Insert a line like the following so we know where you would prefer the table to appear and we will place it as near to that point as we can, given the need to layout the pages.

Insert Table 2 about here

If the table is so large that it cannot be displayed in portrait mode, then prepare it in landscape, and let us know in the cover letter that you have such a table. Place it at the end of the text and we will see if we can adapt it to our publication needs. If we continue to have trouble with the table, we will contact you by e-mail to resolve the issue. One solution might be to submit us a good quality hardcopy on bright white paper (brightness level of 96 or higher), and we could use that to scan in the table, then shrink it to fit. As these factors affect few people, we will address them on a one to one basis.

Finally, if you prepare tables with different column widths in Word, then translate that table into Word Perfect, the result will be a SERIES of tables, displayed one above the other. As you might expect, that creates serious problems during the publishing process. If you have complex tables, we would prefer to receive them in Quattro or in Excel, as separate files.

FIGURES AND ILLUSTRATIONS

Figures can be extremely difficult not only because they do not translate well across platforms, but they tend to slip badly in appearance from computer to computer. For example, some authors like to draw pictures or prepare illustrations in PowerPoint or one of the presentation software packages. These were never intended to fold seamlessly into a word processor.

Please be sure that any figures or illustrations that you incorporate into your manuscript are ABSOLUTELY ESSENTIAL to the reader. If you can omit something without sacrificing understanding, then please do so. If you require a graphic, then please prepare it as a single graphic, NOT as a collection of graphics. Place them at the END of the manuscript and indicate where they should go in the body of your text, as we illustrated for tables, above.

Finally, you MUST SEND A HARD COPY OF THE ILLUSTRATION by mail. This copy should be prepared to appear just the way you would like for it to look. You MUST print it on bright, white paper, with a brightness factor of at least 96 (ordinary paper has a brightness level of 87 and looks dull or yellow to a scanner). Use a high quality printer of at least 1,200 dots per inch to produce the image and print it in BLACK AND WHITE, only. The hard copy of the image will help us to understand what the figure should look like, as well as allow us to use the hard copy to scan the image, if we are unable to read and translate the file.

REFERENCES

References should be prepared in general accordance with the APA (American Psychological Association). We do deviate from APA style with respect to underlines. These do not reproduce well, consequently, we ask that you use italics in place of underlines. Double space between references and do NOT indent in any way. For example:

Citing a Journal Article

Carland, J.W., F. Hoy, W.R. Boulton & J.A. Carland (1984). Differentiating entrepreneurs from small business owners. *Academy of Management Review, 9*(2), 354-359.

Citing an Online Journal Article

Fredrickson, B.L. (2000). Cultivating positive emotions to optimize health and well-being. *Prevention & Treatment, 3,* Article 0001a. Retrieved November 20, 2000, from http://journals.apa.org/prevention/volume3/pre0030001a.html

Citing a Book

Carland, J.W. & J.A. Carland (1999). *Small business management: Tools for success (Second Edition)*. Houston, TX: Dame Publishing.

Citing an Article in a Magazine

G. Gendron & B. Burlingham (1989, April). The entrepreneur of the decade: An interview with Steve Jobs, *Inc.,* 114-128.

Citing a Proceedings

Carland, J.A., J.W. Carland & W.H. Stewart (2000). The indefatigable entrepreneur. *Proceedings of the Association of Small Business and Entrepreneurship,* 168-180.

Citing a Presentation

Ensley, M.E., J.A. Carland & J.W. Carland (May, 1998). The lead entrepreneur. Presented to the *Babson College Entrepreneurship Conference,* Gent, Belgium.

Citing an Article in a Book

Brockhaus, R. H. (1982). The psychology of the entrepreneur. In C. Kent, D. Sexton, & K. Vesper (Eds.), *Encyclopedia of Entrepreneurship* (pp. 39-57). Englewood Cliffs: Prentice-Hall.

Citing an Internet Source

GVU's 8th WWW user survey. (n.d.) Retrieved August 8, 2000, from http://www.cc.gatech.edu/gvu/usersurveys/survey1997-10/

Citing a Dissertation

Carland, J. W. (1982). *Entrepreneurship in a small business setting: An exploratory study.* Unpublished doctoral dissertation, University of Georgia.

Citing a Film

R. LaPointe & H. Glazer (Executive Producers) (1992). *H. Ross Perot: A vision for success in the '90s.* Boston, MA: Goldhirish Group, Inc.

GUIDELINES FOR CASES

Prepare cases as described above with these exceptions. First, instead of an abstract, begin the case with a case description and a case synopsis, both in italics and illustrated below. Technical information is in the description, while the synopsis should gain the reader's interest. The body of the case should follow the synopsis, separated by a heading. Prepare the Instructors' Note, described more fully below, in accordance with these instructions and place it in a separate file.

CASE DESCRIPTION

The primary subject matter of this case concerns (describe the subject, i.e., entrepreneurship). Secondary issues examined include (list as many as the case contains). The case has a difficulty level of (choose one of the following: one, appropriate for freshman level courses; two, appropriate for sophomore level; three, appropriate for junior level; four, appropriate for senior level; five, appropriate for first year graduate level; six, appropriate for second year graduate level; seven, appropriate for doctoral level). The case is designed to be taught in (indicate how many) class hours and is expected to require (indicate how many) hours of outside preparation by students.

CASE SYNOPSIS

In this section, present a brief overview (a maximum of 300 words). Be creative. This section will be the primary selling point of your case. Potential case users are more apt to choose cases for adoption which catch their fancy.

BODY OF THE CASE

The body of the case should follow the Case Synopsis. The body should be prepared in accordance with the preceding instructions.

INSTRUCTORS' NOTES

Instructors' Notes are an important part of the referee process and must be included with all cases submitted for review or for publication in any form. However, notes will not be published in *Proceedings* or in regular *Journal* issues in order to protect the case. For cases accepted for *journal* publication, Instructors' Notes will be published in a special issue devoted solely to notes and that issue will be made available only to authors and to members who request a copy. Notes should be prepared in accordance with these publication guidelines and included as a separate file.

Prepare Instructors' Notes for use by instructors who are not familiar with the case issues. The note should allow the instructor to teach the case without additional research. Begin the note with a REPEAT of the Case Description and Case Synopsis. Follow the Case Synopsis with Recommendations for Teaching Approaches. Specific questions, assignments or teaching methodologies should follow. Be sure to INCLUDE ANSWERS for all questions or assignments. The answers should immediately follow the questions. Epilogues, if appropriate, should close the note. If your case is from library research, include the references for all material used in a REFERENCES section.

PROCEEDINGS PUBLICATIONS

Generally, the Editors view proceedings versions of manuscripts as early representations of the final work. This is a view which is held by most academics and is used by most tenure, promotion and reappointment committees in evaluating research activity.

As an early version of a work in process, proceedings manuscripts should generally be shorter and a reader of the proceedings who later reads a journal publication in final form should be able to note the added work in the expanded version. The Editors recommend that authors employ titles for proceedings versions which will be different from titles used for journal versions of manuscripts and ensure that any reader of both will clearly see the difference in the versions.

If an author does not intend to pursue journal publication of a manuscript, then the complete manuscript, in final form, with final title, can and should be published in the *Proceedings*. However, if an author intends to expand the work for ultimate journal publication, the Editors strongly advise that attention be paid to distinguishing the proceedings version.

LENGTH REQUIREMENTS

In general, we limit *Proceedings* manuscripts to five, single-spaced pages in length. As described in the foregoing paragraph, we find that this is not generally a problem. However, if authors wish longer *Proceedings* versions, we can accommodate them for an additional fee.

In general, we limit *Journal* articles to twenty-five, single-spaced pages, including all references and exhibits. We find that this is generally not a problem, but if authors wish longer versions of manuscripts, we can accommodate them for an additional fee.

CONCLUSION

In closing, we appreciate the assistance of our authors in preparing manuscripts. The process of publication is time consuming and expensive. Clean manuscripts make it much faster, and efficient, and let us devote more resources to serving our membership. If there are any questions, or if any problems occur during the preparation of a manuscript, please e-mail us, and we will make every effort to assist you.

Further information may be found on the Allied Academies' web site. Please feel free to direct inquiries and questions to the Executive Director at info@alliedacademies.org. We promise to reply promptly and to strive to answer all of your questions fully.