

THE THEORITETICAL BASES AND DIMENSIONALITY OF THE CARLAND ENTREPRENEURSHIP INDEX

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ABSTRACT

This paper reports on the theoretical and empirical development, statistical testing, and application of an instrument measuring the strength of an individual's entrepreneurial drive: the drive to create and grow a business 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 entrepreneur back in the new venture performance model.

INTRODUCTION

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 tool to facilitate the search. 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 measurement scale of entrepreneurship and to use that scale to link the entrepreneur to new venture performance. We hope to develop a tool which can capture the essence of the *heffalump* and which can 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 along a continuum, 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 managed by entrepreneurs who demonstrate higher performance orientation and higher 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 focusing 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 walls; 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 devolve 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) described 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 suggested 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 produces 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 it, 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 psyche 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.

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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: personality, preference for innovation, risk-taking propensity, and strategic posture. The authors 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, and to examine whether differences in the strength of that drive affected the performance of the business venture.

THE SAMPLE

Several samples were utilized in testing 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.

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%	
Sex of Respondents	Less than 1 year	5%	
	Male	69%	
Age of Respondents	Female	31%	
	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%	

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 and Fiske, 1959). A recommended testing procedure involves testing to see whether multiple measures of a construct converge (Romney & Bynner, 1992). To facilitate such analysis, 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).

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, extraversion 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 and 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.

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). <i>Please Understand Me</i> . Del Mar, CA: Prometheus Nemesis.	

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).

TESTING THE CARLAND ENTREPRENEURSHIP INDEX

The first step in testing the Carland Entrepreneurship Index 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 with the highest weighted factor in bold print.

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
*	.292	.113	-.256	-.231
*	-.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
*	.043	.219	.186	-.044
37	-.232	.303	-.458	-.021
31	-.382	.082	.447	.152
29	-.085	.121	.381	-.014
25	.310	.005	-.372	-.171
*	.108	-.126	.261	-.082
*	.176	-.016	.258	-.194
*	-.171	-.094	.254	.213
*	.190	-.125	.244	-.223
3	.114	-.339	.356	.454
17	.278	.004	.201	.450

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, displayed in the Appendix, was determined to contain questions which were clearly measuring some characteristic; however, the factor analysis did not produce everything 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.

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.

	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 examination consisted of a series of tests. Reliability and validity tests of instrument scores 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.

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).

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 or Cronbach's Alpha Test for Inter-Item Reliability:	Statistic	.73

DISCRIMINANT AND CONVERGENT VALIDITY

Convergent validity implies an intercorrelation with existing measures linked to the underlying phenomenon (Campbell and 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 and Bernstein, 1994). In other words, there should be little correlation between the Carland 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 Keirse 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, its scores should display high, positive correlation with scores on preference for innovation, propensity for risk taking, need for achievement, and with an intuitive cognitive

preference. If the Index has discriminant validity, it would be expected that its scores 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 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 Carland 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.

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

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.

TABLE 8: Discriminant Analyses Dependent Variable = Primary Business Objective					
Discriminant Analysis for Personality Instruments					
Multiple R: .393 Adjusted Squared Multiple R: .125			Squared Multiple R: .154 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 the Carland Entrepreneurship Index					
Multiple R: .412 Adjusted Squared Multiple R: .165			Squared Multiple R: .169 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 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 score. 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.

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 Carland 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 the Carland 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		

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.

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 in scores. 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 10: Differences among Temperaments					
Distribution of Temperaments					
Temperament					Number
SJ					44%
SP					18%
NF					16%
NT					22%
Analysis of Variance Carland 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 Carland 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		

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.

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 Carland 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 the Carland 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		

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 a continuum. 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 continuum as 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 continuum, we propose to 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 personal and 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 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 general purpose 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 tools required to capture the essence of 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 CARLAND ENTREPRENEURSHIP INDEX

Please check the box next to the **ONE** of each pair of statements which comes **CLOSEST** to representing the way you **USUALLY** feel.

1. Written objectives for this business are crucial
 It's enough to know the general direction you are going
2. I like to think of myself as a skillful person
 I like to think of myself as a creative person
3. I wouldn't have started this business if I hadn't been sure that it would go
 I'm never sure whether this business will go or not
4. I want this business to grow and become a major force
 The real purpose of this business is to support my family
5. The most important thing I do for this business is plan
 I am most important in day to day management of this business
6. I like to approach situations from a sympathetic perspective
 I like to approach situations from an analytical perspective
7. My primary purpose here is to survive
 I won't rest until we are the best
8. A plan should be written in order to be effective
 An unwritten plan for development is enough
9. I probably spend too much time with this business
 I balance my time between this business, family and friends
10. I tend to let my heart rule my head
 I tend to let my head rule my heart
11. My priorities include a lot of things outside this business
 One of the most important things in my life is this business
12. I'm the one who has to do the thinking and planning
 I'm the one who has to get things done
13. People who work for me, work hard
 People who work for me, like me
14. I look forward to the day when managing this business is simple
 If managing gets too simple, I'll start another business
15. I think I am a practical person
 I think I am an imaginative person
16. The challenge of being successful is as important as the money
 Money which comes with success is the most important thing
17. I'm always looking for new ways to do things
 I try to establish set procedures to get things done right
18. I think it is important to be sympathetic
 I think it is important to be logical

19. I think that standard operating procedures are crucial
 I enjoy the challenge of invention more than anything else
20. I spend as much time planning as in running this business
 I spend most of my time running this business
21. I have found that managing this business falls into a routine
 Nothing around here is ever routine
22. I prefer people who are realistic
 I prefer people who are imaginative
23. The difference between competitors is the owner's attitude
 We have some things which we do better than the competitors
24. My personal objectives revolve around this business
 My real life is outside this business with family and friends
25. I enjoy the idea of trying to outwit the competition
 If you change too much, you can confuse the customers
26. The best approach is to avoid risky moves whenever possible
 If you want to outdo the competition you have to take some risks
27. I hate the idea of having to borrow money
 Borrowing is just another business decision
28. Quality and service aren't enough. You must have a good image
 A fair price and good quality is all any customer really wants
29. People think of me as a hard worker
 People think of me as easy to get along with
30. The only undertakings this business makes are those that are relatively certain
 If you want the business to grow you have to take some risks
31. The thing I miss most about working for someone else is security
 I don't really miss much about working for someone else
32. I am concerned about the rights of people who work for me
 I am concerned about the feelings of people who work for me
33. It is more important to see possibilities in a situation
 It is more important to see things the way they are

SCORING INSTRUCTIONS FOR THE CARLAND ENTREPRENEURSHIP INDEX

Put a check in the appropriate box for the first or second choice for each of the questions. Count the number of checks appearing in boxes which have the word "count" appearing beside them. The total of number of checks in "count" boxes will be the respondent's Entrepreneurship Index and will range from 0 to 33.

	1st Choice	2nd Choice		1st Choice	2nd Choice
1	<input type="checkbox"/> COUNT	<input type="checkbox"/>	18	<input type="checkbox"/>	<input type="checkbox"/> COUNT
2	<input type="checkbox"/>	<input type="checkbox"/> COUNT	19	<input type="checkbox"/>	<input type="checkbox"/> COUNT
3	<input type="checkbox"/>	<input type="checkbox"/> COUNT	20	<input type="checkbox"/> COUNT	<input type="checkbox"/>
4	<input type="checkbox"/> COUNT	<input type="checkbox"/>	21	<input type="checkbox"/>	<input type="checkbox"/> COUNT
5	<input type="checkbox"/> COUNT	<input type="checkbox"/>	22	<input type="checkbox"/>	<input type="checkbox"/> COUNT
6	<input type="checkbox"/>	<input type="checkbox"/> COUNT	23	<input type="checkbox"/>	<input type="checkbox"/> COUNT
7	<input type="checkbox"/>	<input type="checkbox"/> COUNT	24	<input type="checkbox"/> COUNT	<input type="checkbox"/>
8	<input type="checkbox"/> COUNT	<input type="checkbox"/>	25	<input type="checkbox"/> COUNT	<input type="checkbox"/>
9	<input type="checkbox"/> COUNT	<input type="checkbox"/>	26	<input type="checkbox"/>	<input type="checkbox"/> COUNT
10	<input type="checkbox"/>	<input type="checkbox"/> COUNT	27	<input type="checkbox"/>	<input type="checkbox"/> COUNT
11	<input type="checkbox"/>	<input type="checkbox"/> COUNT	28	<input type="checkbox"/> COUNT	<input type="checkbox"/>
12	<input type="checkbox"/> COUNT	<input type="checkbox"/>	29	<input type="checkbox"/> COUNT	<input type="checkbox"/>
13	<input type="checkbox"/> COUNT	<input type="checkbox"/>	30	<input type="checkbox"/>	<input type="checkbox"/> COUNT
14	<input type="checkbox"/>	<input type="checkbox"/> COUNT	31	<input type="checkbox"/>	<input type="checkbox"/> COUNT
15	<input type="checkbox"/>	<input type="checkbox"/> COUNT	32	<input type="checkbox"/> COUNT	<input type="checkbox"/>
16	<input type="checkbox"/> COUNT	<input type="checkbox"/>	33	<input type="checkbox"/> COUNT	<input type="checkbox"/>
17	<input type="checkbox"/> COUNT	<input type="checkbox"/>			

Total Score _____