SMALL BUSINESS OWNER-MANAGERS AND CORPORATE MANAGERS:
A COMPARATIVE STUDY OF ACHIEVEMENT MOTIVATION,
RISK TAKING PROPENSITY AND PREFERENCE FOR INNOVATION

DISSERTATION

Presented to the Graduate Council of the
University of North Texas in Partial
Fulfillment of the Requirements
For the Degree of

DOCTOR OF PHILOSOPHY

By

Wayne H. Stewart, Jr., B.S.B.A., M.B.A.
Denton, Texas
May, 1995
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Despite the economic significance of entrepreneurship, relatively little is known about the entrepreneur, particularly how the entrepreneur differs from the corporate manager. This problem is both cause and symptom of the discord regarding definitions of the entrepreneur, rendering sampling, research replication and generalizations about entrepreneurs problematic. As a result, inquiry has failed to adequately establish how entrepreneurs differ from managers, a problem partially stemming from a dearth of methodologically rigorous comparisons of entrepreneurs with managers.

The primary purpose of this study was to investigate the potential of psychological constructs to predict a proclivity for entrepreneurship. Moreover, differences in types of small business owner-managers were also investigated. Included in the research model were three common themes in the entrepreneurship literature: achievement motivation, risk taking propensity and preference for innovation. Also incorporated were the
interactions of the psychological constructs, as well as individual and firm demographic variables.

A broad survey of 767 small business owner-managers and corporate managers was assembled from a 20 state region, primarily the Southeastern United States. The subjects completed a questionnaire composed of the Achievement Scale of the Personality Research Form, the Risk Taking and Innovation Scales of the Jackson Personality Inventory and questions pertaining to individual and organizational variables. The owner-managers were categorized into two groups, entrepreneurs and small business owners. Both groups were simultaneously compared to managers using hierarchical set multinomial LOGIT regression.

The results indicated that the psychological constructs are associated with small business ownership. Entrepreneurs exhibited the classical profile of high levels of achievement motivation, risk taking and preference for innovation relative to both small business owners and managers. The only psychological factor which distinguished the small business owners from managers was a higher propensity for risk taking. The results suggest that, ecumenically, it is the willingness to assume risk which psychologically distinguishes the small business owner-manager from the corporate manager.
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CHAPTER 1

INTRODUCTION

The phenomenon of entrepreneurship has evoked intensive academic and managerial attention, particularly over the past ten years. Sexton (1987) observed that more was learned about entrepreneurship in the period of 1982 to 1987 than in the previous 25 years combined. The field of entrepreneurship has become a generally recognized academic discipline (Block & Stumpf, 1992) and it continues to burgeon as entrepreneurs become the darlings of the American public, as more people seek business ownership and as researchers redouble inquiry into the phenomenon.

Given the significance of the activity, this curiosity is readily comprehensible. Entrepreneurs are economic catalysts, generating economic growth and employment through new venture creation (Schumpeter, 1934; Kilby, 1971; Olson, 1985; Birley, 1987; Reynolds, 1987; Kirchhoff & Phillips, 1991). Wheelen and Hunger (1989) identified small businesses, the creations of entrepreneurs, as the backbone of the U.S. economy. The authors ascertained that small businesses accounted for more than half of total employment, and over eighty percent of employment growth during the decade of the 1980s. In fact, it has been proposed that small businesses render the social mobility which is an
integral component of a dynamic, free society (Sandberg & Hofer, 1982), and entrepreneurship may be central to responding to organizational, economic and even social challenges (Acs & Audretsch, 1992).

Once the domain of small business research and practice, much of the focus of entrepreneurship is being directed toward large organizations. Intrapreneurship, the corporate entrepreneurial activity, is synonymous with flexibility (Jennings, 1987), and is routinely discussed as a catalyst of organizational renewal and growth (Ancona & Caldwell, 1987). For instance, Chittipeddi and Wallott (1991) predicted that the organizational archetype of the future will reflect the leadership, strategies and structure of entrepreneurial thinking with accompanying traits such as flexibility, innovativeness and problem-solving action orientation. Davis, Morris and Allen (1991) depicted entrepreneurship as a proactive corporate response to dynamic, complicated and threatening environments. According to the authors, entrepreneurship represents an organizational orientation centered on creativity, innovativeness, flexibility and risk taking. These considerations emphasize the importance of cultivating our understanding of the purposes, activities and outcomes of entrepreneurs in organizations of all sizes.
Statement of Research Problem

Despite the apparent economic centrality and significance of entrepreneurial activity and the emergence of entrepreneurship as a legitimate area of academic inquiry, sound theories and models of entrepreneurship are sparse. This condition led Wortman (1987) and Bygrave and Hofer (1991) to the conclusion that the field of entrepreneurship lacks an adequate theoretical foundation. The theoretical void limits progression in this nascent field. Nowhere is this more apparent than in the fundamental definition of the entrepreneur.

A consensual definition of the entrepreneur remains elusive (Timmons, 1978; Carland, Hoy, Boulton & Carland, 1984; Olson, 1985; Carsrud, Ohm & Eddy, 1985; Brockhaus & Horwitz, 1986; Churchill & Lewis, 1986; Low & MacMillan, 1988; VanderWerf & Brush, 1989; Bygrave, 1989; Gartner, 1990; Cunningham & Lischeron, 1991; Bygrave & Hofer, 1991; Hornaday, 1992; Bull & Willard, 1993; Hufner & Hunt, 1994). This condition has caused one exasperated researcher to call for the abandonment of the use of the term entrepreneur (Hornaday, 1992). Nevertheless, entrepreneurship must be discernible from other concepts (Hornaday, 1992); otherwise, meaningful inquiry is jeopardized. The lack of a definition renders sampling, research replication and generalizations about entrepreneurs problematic (Sexton, 1987; Johnson, 1990) because there are currently no identified boundaries
for discussing entrepreneurial activities (Olson, 1985). An acceptable definition of entrepreneurship would provide consistency in sampling frames and unity of inquiry (Low & MacMillan, 1988), as well as facilitate the evolution of an integrated conceptual framework in the field (Wortman, 1987).

While this definitional conundrum may be partially due to the complexity of the phenomenon and the diversity of perspectives in this multidisciplinary field, the problem of making distinctions between the entrepreneur and the professional manager exacerbates the definitional dilemma. Yet, entrepreneurial activities must be distinguishable from managerial activities (Penrose, 1968) in the process of learning more about both the entrepreneur and the manager. Such distinctions have appeared in the literature. Hoselitz (1962) traced the theoretical basis for distinguishing entrepreneurs to Sombart, noting that such a distinction extends beyond economic roles to possibly include different motivations and personality types.

In an early conceptual work, Hartman (1959) reviewed historical discussions about potential differences between entrepreneurs and managers. Hartman identified the conceptual bases and advantages of such a distinction, agreeing with Weber (1917) that the entrepreneur was the ultimate source of authority within an organization. Litzinger (1965) refined the distinction, defining an
entrepreneur as one who is goal- and action-oriented, whereas a manager executes policies and procedures to achieve the goals. Empirical studies have indicated that managers and entrepreneurs have different management styles, particularly with regard to decision making style (Carland, 1982; Smith, Gannon, Grimm & Mitchell, 1988; Richard, 1989; Carland & Carland, 1992; Busenitz, 1992/1993). Delineations between entrepreneurs and managers, however, remain nebulous and tend to be grounded in anecdotal descriptions rather than in rigorous empirical investigation. For instance, Timmons (1990) described the common conception that a good entrepreneur is typically not a good manager because the entrepreneur lacks the requisite experience and management skill. Alternatively, it is assumed that a manager is not an entrepreneur because the manager lacks the personal qualities and orientation to create a new business venture.

Although copious research on the entrepreneur has been generated, there is insufficient agreement on how an entrepreneur differs from a manager in a large organization, a problem partly stemming from the fact that not many studies have compared entrepreneurs and managers (Greenberger & Sexton, 1988). The comparative studies which have been conducted have generated inconsistent results (e.g., see Brockhaus & Horwitz, 1986; Perry, 1990). Ginsberg and Buccholtz (1989) recently echoed Gartner's (1985) cogent observation that empirical studies have not
clearly established the extent to which entrepreneurs are
different from other types of business persons, particularly
managers. Few studies have investigated differences in the
two groups in a theoretically, methodologically sound
fashion. For example, most studies of entrepreneurial
psychology have used small sample sizes and convenience
samples (Greenberger & Sexton, 1988). In a review of the
nature of the entrepreneur, Ginsberg and Buccholtz (1989)
noted that the studies were highly fragmented in terms of
sample size, type of population sampled, instrumentation and
analytical technique. The authors concluded that much of
the contradictory results among the studies may be a
function of conceptual and methodological differences.

Confusion in the literature has initiated calls for
additional research, particularly comparative
investigations, in order to definitively identify the
salient features of the entrepreneurial personality (Hoy &
Carland 1983; Sexton & Bowman, 1983; Johnson, 1990; Herron &
Robinson, 1993) and to cultivate theory development in
entrepreneurship beyond the contributions of the seminal
sciences which spawned the field of entrepreneurship
(Bygrave, 1989). Because we still know relatively little
about the entrepreneur (Begley & Boyd, 1987a; Cunningham &
Lischerson, 1991), such efforts would contribute to theory
building in the field. One of the major challenges
confronting entrepreneurship researchers is to develop
models and theories based upon solid foundations from the social sciences (Bygrave & Hofer, 1991).

This study is a response to the challenge for additional inquiry. Research suggests that there are a host of psychological, sociological, demographic and economic factors which influence the decision to become an entrepreneur (Sexton & Bowman, 1985; Cunningham & Lischeron, 1991; Herron & Robinson, 1993). The psychological traits of the entrepreneur are a significant element of an overall model of entrepreneurship (Powell & Bimmerle, 1980; Martin, 1984; Sandberg, 1986; Herron & Robinson, 1993). Moreover, evidence suggests that managerial style, particularly decision making, is related to personality (Richard, 1989), and the personality of entrepreneurs influences the organizations which they create (Schein, 1983; Kets de Vries, 1985; Mintzberg, 1988; Chandler & Jansen, 1992; Dyke, Fischer & Reuber, 1992). Given these observations, psychological characteristics are the focus of the investigations in this study.

The central problem which is addressed in this study is to investigate the psychological predispositions of small business owner-managers and corporate managers to determine if there are any distinctive differences. Specifically, three commonly identified psychological driving forces are investigated to determine if small business owner-managers and corporate managers exhibit significant differences.
These psychological characteristics are risk taking propensity, achievement motivation and preference for innovation. The fundamental research question in this study is:

Do the psychological predispositions, as evidenced by achievement motivation, risk taking propensity and preference for innovation, differentiate between individuals' decisions to become a corporate manager or small business owner-manager?

Subordinate research questions include:

1. Do risk taking, achievement motivation and preference for innovation interact in their association with the decision to become a small business owner-manager?

2. Do individual demographic factors, age, education, gender and race, as well as the type of organization, influence the association between psychological predisposition and the ownership of a small business?

3. Because of potential variation in types of small business owner-managers, are there differences in the achievement motivation, risk taking propensity and preference for innovation among subsamples of small business owner-managers which are based upon founding motivations and planning practices?

Theoretical Basis for the Research

A host of research has been devoted to developing psychological theories of the entrepreneur. Elements of this psychological research have included job dissatisfaction, motivation, risk taking propensity, attitudes, intentions, creativity, values, tolerance of ambiguity and locus of control. As indicated by Wortman (1987), this area of research in the behavior of entrepreneurs is a subset of the organizational behavior
literature. It is this area of research which provides the theoretical foundation for this study.

The theoretical underpinning for research in entrepreneurial characteristics is derived from the field of psychology. The appropriate theoretical model for studying individual behavior, however, continues to be a source of debate in both fields. The central assumption of psychology that internal dispositions have an important influence on behavior has been a point of controversy over the past three decades.

**The Determinants of Behavior**

The original proposition, the trait model, suggested that traits existed within the individual and would influence people to behave relatively consistently in similar situations. Mischel (1968) marshalled the attack against the prevailing theoretical and methodological approach of trait theory by arguing that predicting behavior from personality traits is arduous because behavior is not stable over situations and time. Mischel hypothesized that, with few exceptions, trait-behavior and cross-situational correlations do not exceed the magnitude of .30. Mischel cautioned that, to the extent that behavior is situation specific, demonstrated generalized consistencies are an impossibility.

There were numerous retorts to Mischel's proposition, and responses from personality theorists (see Kenrick &
Funder (1988), and Chell, Haworth & Brearley (1991) for comprehensive discussions). Some researchers have argued that the ensuing debate about whether traits or situations are the primary source of behavior variance has been a "pseudo controversy" of little value (Endler, 1973; Endler & Magnusson, 1976; Carlson, 1984). Nonetheless, the relative merits of personality models such as traits, psychodynamics, situationism and interaction continue to be a source of contention.

Endler and Magnusson (1976) completely and elaborately presented the characteristics of the aforementioned personality models. Of the models, trait and situationism are polar in approach, while the interactionism model incorporates elements of both. The trait model is based upon the supposition that traits are the basis for individual differences, are primary determinants of behavior and provide a predispositional basis for behavioral consistencies across different situations. Traits, therefore, are the basis for analyzing individual or group differences. Nevertheless, it should be noted that the trait model does include a recognition of the behavioral influence of situational factors and does not assume that individual behavior is consistent in different situations.

Alternatively, the situationalism model focuses upon the stimuli in situations as the fundamental determinants of behavior. Situationalism can be described basically as a
stimulus-response approach to understanding behavior. Kenrick and Funder (1988) presented a series of hypotheses which have been advanced by situationists as problems associated with tests of consensus, discriminativeness, behavior foundation and internality with regard to traits having a behavioral basis. The authors suggested that available data provide a strong argument against these concerns. Nevertheless, many situationists, including social behavior theorists, have not excluded person factors in their descriptions of behavior.

Interactionism is based on the tenet that behavior is influenced by the confluence of personality, the situation and their interaction (Chell et al., 1991). Here, situational and trait effects are not mutually exclusive. Instead, the importance of the interaction between person and situation is emphasized. Behavior is affected by situations, but an individual also selects situations and influences the nature of these situations (Endler & Magnusson, 1976). Researchers have demonstrated how person and situations interact. Traits: influence behavior in relevant situations (Allport, 1966; Bem & Funder, 1978); may change situations (Rausch, 1977); may be more easily expressed in certain situations (Monson, Keel, Stephens & Genung, 1982; Price & Bouffard, 1974; Schutte, Kenrick & Sadalla, 1985); may lead people to choose different situations (Snyder & Ickes, 1985); and have proved

Entrepreneurs: Behaviors or Psychological Traits?

Entrepreneurship research can be clustered into three primary categories: why entrepreneurs act; how they act; and what happens when they act (Stevenson & Jarillo, 1990). As in psychology, considerable debate in the field of entrepreneurship has centered on the relative importance of the first two of these categories because these particular research areas require an ability to define who the entrepreneur is before it can be discerned why and how an entrepreneur acts. Yet, the value of identifying entrepreneurs has been criticized (Kilby, 1971; Van de Ven, 1980; Gartner, 1988).

Gartner (1988) delivered the most critical of the attacks on psychological trait studies of the entrepreneur. Building on Vesper's (1982) contention that the primary phenomenon of entrepreneurship is the creation of an organization, Gartner argued that the study of the entrepreneur was one step removed from organization creation. Alternatively, Gartner advocated a behavioral approach which views the creation of an organization as a contextual event and focuses upon the organization as the primary level of analysis. According to this viewpoint, entrepreneurs should be defined by what they do in
organization creation, not who they are. Behavior is a specific sample of observable actions (Fishbein & Ajzen, 1975). These observable actions of entrepreneurs are the focus of the proponents of what might be labelled the "behavioral school". Hence, entrepreneurship may be understood by focusing upon individual entrepreneurial activities, processes and outcomes, rather than characteristics (Chell, 1985).

Carland, Hoy and Carland (1988) provided the rejoinder to Gartner's thesis, contending that if more knowledge about small business ventures is the objective, then more must be learned about the individuals who create and manage them because the two are inextricably bound. Carland et al. suggested that researchers who debate the relative importance of the alleged "trait" or "behavioral" schools have lost direction provided by the concept of entrepreneurship because the definitional issue is only an intermediary step in addressing the question of "why". Further, the authors argued that research efforts cannot be limited to a part of the whole because all of the parts and their interaction must be investigated in order to fully understand entrepreneurship.

Subsequently, Bygrave and Hofer (1991) and Hofer and Bygrave (1992) have suggested shifting the focus from the characteristics and functions of the entrepreneur to a focus
on the nature and characteristics of the entrepreneurial process or system, the primary characteristics of which are:

1. the importance of human volition,
2. change occurring at the individual firm,
3. a change of state,
4. discontinuity,
5. entrepreneurship as a holistic, dynamic and unique process,
6. the role of numerous antecedent variables, and
7. sensitivity to the initial conditions of these variables.

The selection of an entrepreneurial model is contingent upon the information which the researcher desires to emphasize in selecting different aspects of the entrepreneurial process (Cunningham & Lischeron, 1991). Yet, a fully descriptive model of the entrepreneurship process or system must include the entrepreneur. For example, Martin's (1984) often cited model of entrepreneurship portrays the decision to initiate a business as a function of a number of factors, including the individual's personality. Personality also plays a central role in the entrepreneurship models of Sandberg (1986), Greenberger and Sexton (1988), Herron and Robinson (1993) and Naffziger, Hornsby and Kuratko (1994).

Clearly, situational factors and social function are integral components of the entrepreneurial process (e.g., Shapero, 1975; Martin, 1984; Greenberger & Sexton, 1988;
Herron & Robinson, 1993), but all people will not become entrepreneurs under comparable circumstances. Some type of individual predisposition toward entrepreneurship may exist, and if one operates under the assumption that behavior is best understood by studying the person and the situation, then psychological traits and motives should be an integral part of entrepreneurship research (Johnson, 1990; Carland et al., 1984; Goldsmith & Kerr, 1991). This does not mean that situational circumstances are irrelevant, but attention to personality can help explain why entrepreneurial behavior differs under comparable situational circumstances. Therefore, individual personality features are a necessary (Cromie & Johns, 1983), if insufficient condition, for the process of entrepreneurship. To understand behavior, one must look at both elements and their interaction. Shaver and Scott (1991) proposed that a psychological approach to new venture creation must involve cognitive processes which occur within an individual, and counseled that an approach based on persons, process and choice holds promise for theoretical development.

A more complete understanding and definition of the entrepreneur is to be gained by examining the characteristics, the behaviors and the interaction of the two. A comprehensive model of entrepreneurship must demonstrate how the predispositions and cognition of entrepreneurs are transformed into action (Shaver & Scott,
Few studies have examined the connections between the psychological predisposition and the individual behaviors of entrepreneurs, and concomitant organizational outcomes (Johnson, 1990). While testing all of the proposed linkages is beyond the scope of this research, this study may clarify some of the psychological predispositions of entrepreneurs. Therefore, this study may serve an important function in providing a foundation for additional research directed at a comprehensive model of the entrepreneur. While such a model based solely upon a psychological trait approach would be poorly specified, so would a model of entrepreneurship that did not include the primary forces of human volition, psychological predisposition. In other words, personality characteristics may be indicative of a predisposition toward, or potential for, entrepreneurship (Lachman, 1980).

Streams of Research in Entrepreneur Characteristics

In evaluating a psychological predisposition for entrepreneurship, this study employs three streams of research which are evidenced in the classical descriptions of the entrepreneur. The areas of research are achievement motivation, risk taking propensity and innovativeness, which are widely considered to be the classical hallmarks of the entrepreneur. While a host of psychological traits have been studied in the entrepreneur, these characteristics are most habitually cited in descriptions of the entrepreneur.
One of the central roles for a business person is decision making in complex, uncertain circumstances. Risk taking can be effectively conceptualized as an individual's orientation toward taking chances in a decision making scenario (Sexton & Bowman, 1985). Entrepreneurs are generally believed to have a higher propensity for risk taking than other groups (Hull, Bosley & Udell, 1980; Sexton & Bowman, 1983, 1984, 1986). Three different approaches have been proposed concerning coping with risk in decision making (Schwer & Yucelt, 1984). The first of these approaches, expected utility theory, is founded upon economic principles and the assumption of rationality. The second is based on information processing and relaxed assumptions of rationality. The third theory is grounded primarily in psychology, and is concerned with psychological effects on the decision making process, such as achievement motivation. This last approach is the basis for investigating the propensity for risk taking in this study.

Murray (1938) identified the need for achievement as a basic need which influences behavior. The extension of need for achievement to entrepreneurship through a series of investigations by McClelland (1961, 1965) entrenched the construct in the entrepreneurship literature. Subsequent studies have indicated that high achievement motivation is a salient characteristic of entrepreneurs (Hornaday & Bunker,
The last construct, innovativeness, was sparked by the work of Schumpeter (1934) in classical theories of economics, and continues to be frequently identified as a functional characteristic of the entrepreneur (McClelland, 1961; Hornaday & Aboud, 1971; Timmons, 1978; Carland et al., 1984; Drucker, 1985; Carland, Carland, Hoy & Boulton, 1988; Gartner, 1990). This stream of literature has demonstrated that the entrepreneur tends to be more innovative or creative. Yet, of the literature dealing with the characteristics of entrepreneurs, the predisposition toward innovation has been the least empirically investigated.

Significance of the Research

The entrepreneur is the central figure in entrepreneurship (Lachman, 1980; Carland et al., 1988; Johnson, 1990; Shaver & Scott, 1991; Herron & Robinson, 1993; Naffziger et al., 1994). Moreover, Cole (1951) suggested that to study the businessman was to study the principal figure in economic activity. DeCarlo and Lyons (1979) elaborated on this proposition by suggesting that the entrepreneur is the central figure in economic activity. Given the significance of entrepreneurial activities in economic outcomes (Kilby, 1971; Birley, 1987; Reynolds, 1987), encouragement of entrepreneurship is beneficial to society (Hull, Rosley & Udell, 1980). Kent (1982) posited
that entrepreneurship is instrumental in both the supply and demand sides of the economic growth equation.

The business behaviors of two types of business people, managers and entrepreneurs, are clearly quite different and may extend beyond the act of new venture creation. The genesis for understanding behavioral differences between entrepreneurs and managers may lie in understanding the differences in the two groups' psychological predispositions. Obtained differences in these two groups have important implications in terms of both theory and practice for both the field of entrepreneurship and the field of management.

For the field of entrepreneurship, the potential significance of the research lies in contributing to the resolution of the definitional quandary, in understanding more about venture teams, in understanding more about organizational growth and in maximizing entrepreneurship education and assistance programs. The research may ultimately also have indirect implications for the field of management. While a focus on the psychological predispositions of managers is exterior to the scope of this research, corporate managers are used as a reference group to ascertain the distinctiveness of small business owner-managers. Nonetheless, if small business owner-managers are different than corporate managers, then there could be implications for researchers who are analyzing phenomena
such as the phases of the organizational life cycle and corporate entrepreneurship. Improved knowledge in all of these areas may lead to ameliorative prescriptions for the individual, the organization and the broader society.

Methodology

This study entails the investigation of psychological variables which are not readily amenable to reliable, valid direct observation. The study is also intended to be broadly based and to use a large sample. For these reasons, a survey design is the chosen research methodology. Buckley, Buckley and Chiang (1976) proposed that surveys are best suited to research on attitudes, impressions and beliefs. Zikmund (1994) identified the behavioral component of an attitude as that which reflects behavioral expectations and reflects a predisposition to action. The survey methodology is also suitable for the research questions because it has acceptable levels of holism, precision and external validity (Buckley et al., 1976).

Definition of Terms

The following terms are defined as they are utilized in this study:

1. Small Business Owner-Manager - As indicated, there is disagreement over the definition of the entrepreneur. The use of the term small business owner-manager helps elude some of the definitional problems associated with
the term entrepreneur. A small business owner-manager is an individual who owns and operates a small business. New venture creation is not a necessary prerequisite. Two types of small business owner-managers (Carland et al., 1984) will be investigated in this research:

1a. Entrepreneur - An individual who owns and operates a business with the primary goals of profit and growth and is likely to utilize strategic management practices. In most other studies, the entrepreneur is defined as an individual who founded a new business venture, although other stipulations have sometimes been added. Because of the definitional imprecision, the meaning of the term entrepreneur which was used for each study is specified in the review of the literature.

1b. Small Business Owner - An individual who owns and operates a small business as an extension of personal goals. The primary goal is family income. The small business owner views the business as an extension of his or her personality.

2. Intrapreneur - An individual with duties in the context of a large organization which are considered entrepreneurial, including: developing internal
markets and operating in relatively small, independent units designed to create, to internally test-market and to expand improved and/or innovative staff services, technologies or methods within the organization (Nielsen, Peters & Hisrich, 1985).

3. Small Business - According to Peterson, Albaum and Kozmetsky (1986), the Small Business Administration's definition is most frequently used: A small business is one which is independently owned and operated, and which is not dominant in its field of operation.

4. Manager - An individual who holds a position of responsibility in an organization. This individual's responsibilities include: supervision of employees or officers within the organization, protection or conservation of organizational assets, performance of a unit of the organization, or involvement in planning for the organization (Carland & Carland, 1992).

5. New Business Venture- A new organization existing where none existed before (Gartner, 1985), which, for the purposes of this study, is an independent entity.

Chapter Summary

This chapter was organized to provide a broad, thorough overview of the study. First, an introduction to the significance of entrepreneurship was provided, followed by the research problem of the study. The theoretical foundation of the study was presented next. Subsequently,
the elements of the significance of the research were presented. This was followed by an overview of the research methodology to be used, followed by the definitions of relevant terms which are used in the study.

Organization of the Research

The research is organized into five chapters. An introduction and overview of the study including the statement of the problem, purpose of the research, terminology, significance of the research and the methodology of the study were provided in this first chapter. A review of the literature pertaining to achievement motivation, risk taking propensity, innovativeness, entrepreneurial types and individual and organizational demographic variables are presented in the second chapter. In the third chapter, the research methodology and procedure for the execution of the study are outlined. The fourth chapter contains the analysis of the data. A discussion of the results, the implications of the findings, the limitations of the research and directions for future inquiry are rendered in the fifth, and final, chapter.
CHAPTER II

REVIEW OF LITERATURE

Researchers have taken varied approaches to the study of entrepreneurship, employing a multitude of definitions of the term "entrepreneur", applying different theoretical assumptions and studying numerous facets of the phenomenon of entrepreneurship. Primary attention has been devoted to the individual, the entrepreneur. Cole (1942) initiated a significant research effort devoted to ascertaining the motivating forces and characteristics of the entrepreneur. Subsequently, many researchers have assumed that the process of entrepreneurship is initiated by an act of human volition (Bygrave & Hofer, 1991), and thus, the individual entrepreneur is the nucleus of entrepreneurship (Gasse, 1982; Mitton, 1989). Therefore, the entrepreneur has been studied as the primary factor in organization creation, as researchers have sought to discover personality traits and psychological characteristics which could differentiate individuals who initiate new ventures from those who do not (McClelland, 1961; Palmer, 1971; Hornaday & Aboud, 1971; Brockhaus, 1982; Brockhaus & Horwitz, 1986; Wortman, 1987; Carsrud, Olm & Eddy, 1985; Gartner, Mitchell & Vesper, 1989).
Much of the research in entrepreneurship has been founded upon the premise that entrepreneurs embody distinctive personality characteristics which can be identified (Cooper & Dunkelberg, 1987) and used to indicate a potential for entrepreneurship (Lachman, 1980). Timmons, Smollen and Dingee (1985) posited that there are in excess of twenty personal characteristics which differentiate entrepreneurs from the general population. Researchers have also used demographic characteristics to profile entrepreneurs. These demographic factors have included age, gender, education, occupation of parents, job displacement and race. Also, studies have included demographic variables as potential confounders in the relationship between personality characteristics and entrepreneurial inclinations (Schwer & Yucelt, 1984). These factors have been evident in typologies of entrepreneurs.

This review of the literature is not intended to be representative of the entirety of the studies of the psychological nature of entrepreneurs. Nevertheless, even a cursory gleaning of the entrepreneurship literature indicates the ubiquity of certain psychological characteristics. In a comprehensive review of definitions of entrepreneurship, Long (1983) identified three common themes: uncertainty and risk, complementary managerial competence and creativity or innovativeness. According to
Long, these characteristics delimit the essential nature of the entrepreneur.

Psychological Constructs

This review is focused upon three primary streams of research on variables which have been most frequently studied in relation to the entrepreneur. These variables are achievement motivation, risk taking propensity and innovativeness. These three primary themes are evidenced in the rich history of theorizing about the entrepreneur (Long, 1983; Carland et al., 1984; Bellu, 1987/1988), and empirical research has generally supported relationships between these three psychological constructs and the entrepreneur (Gasse, 1982). Given the ubiquity of these constructs, it is proposed that these three variables can be used to specify a model of the entrepreneur which differentiates small business owner-managers from managers. The most intensely researched of these characteristics is achievement motivation.

Achievement Motivation

The origins of the achievement motivation, or the need for achievement, construct can be traced to the work of James (1890), who discussed how the achievement of self-determined goals results in improved self-regard and a sense of wellbeing. Fineman (1977) attributed the formalization of the achievement motive construct to Murray (1938), who
identified need for achievement as one of the personality needs which influences behavior. Murray described achievement motivation as a desire or tendency to accomplish tasks expeditiously and/or as well as possible. Murray also identified achievement motivation as a desire: to accomplish something difficult, to overcome obstacles and to attain a high standard, to excel one's self and to rival and surpass others and to increase self-regard by successfully utilizing talent.

The work and theory of Murray influenced the research of McClelland (1961), who was the first to apply theories of achievement motivation specifically to entrepreneurial and managerial behavior. According to McClelland, entrepreneurship is the intervening phenomenon which transforms need for achievement into economic growth. Similarly, Meyer, Walker and Litwin (1961) hypothesized that achievement motivation would seem to be particularly pertinent in the competitive environment which characterizes many industrial roles.

In a study of behavior in young men, McClelland (1961) found that a high need for achievement score was related to "entrepreneurial" behavior on laboratory tasks, preference for business occupations when they represent a moderately high level of aspiration, and occupational status as a business executive versus specialist or professional in the United States, Poland and Italy. McClelland concluded that
a high need for achievement would influence the self selection of an "entrepreneurial" position, defined as a salesman, company officer, management consultant, fund-raiser or owner of a business.

McClelland (1961) also made comparisons of managers. In a study of managers and staff specialists in the United States, McClelland discovered that managers scored significantly higher on need for achievement than did the staff specialists. Examining middle level executives and students of law, medicine and theology in Italy, McClelland concluded that the middle level managers demonstrated significantly higher need for achievement than did the students. Finally, McClelland investigated differences between managers and professionals in Poland. Here the managers scored higher in need for achievement than did the professionals.

McClelland posited that a high need for achievement predisposes a young person to seek out an entrepreneurial position in order to attain more achievement satisfaction than could be derived from other types of positions. Alternatively, a manager tends to be high in need for power and lower in need for achievement (McClelland & Winter, 1969). McClelland suggested that those individuals with a high level of need for achievement tended to exhibit a certain pattern of role behavior, including:

1. Risk-taking as a function of skill, not of chance,
2. Energetic and/or novel instrumental activity,
3. Assumption of individual responsibility,
4. Knowledge of results of decisions,
5. Money as a measure of results and

Subsequently, McClelland distilled these outcomes associated with achievement motivation into three main traits: assumes personal obligation for finding solutions to problems, sets moderate goals and takes calculated risks to achieve them and desires explicit feedback pertaining to performance.

McClelland (1965) sought to confirm the 1961 results with a longitudinal study. McClelland had tested the need for achievement of 58 students at Wesleyan University in late 1947. In 1961, the occupational status of 55 of those students was available. At least for U.S. white college educated males, the results corroborated the theory that individuals with a high need for achievement tend to gravitate toward business occupations of an "entrepreneurial" nature. McClelland concluded that need for achievement is a fairly stable personality characteristic.

Additionally, McClelland attempted to cross-validate the findings with a sample of 158 additional students to whom the Thematic Apperception Test (TAT) had been administered in 1950 and 1951. The results confirmed the findings that males who were high in achievement motivation
tended to seek entrepreneurial business occupations. There are methodological concerns here, however, because the testing of need for achievement of the groups was different, using different and variable procedures, and the latter group may not have had time to settle into a preferred occupational position.

Despite the ubiquitous influence of McClelland on subsequent researchers, some have questioned his findings. Frey (1984) critiqued the McClelland thesis on a number of grounds, including empirical validity, particularly noting that the need for achievement had been assessed from content analyses of small samples of literature and other artifacts of culture. Frey also argued that the samples were biased in terms of size and population representativeness, and that the interpretation of the data does not confirm that social factors have a circumscribed impact on the relationship between need for achievement and entrepreneurial activity. Also, the TAT has been criticized for low predictive validity (Klinger, 1966) and low test-retest reliability (Entwisle, 1972; Miner, 1980). Moreover, these studies did not actually link need for achievement with the founding or ownership of a business, the classical hallmark of the entrepreneur.

Despite the potential limitations on its usefulness, the work of McClelland has spurred a flurry of analyses which have included achievement motivation as a variable in
studies of the entrepreneur. Selected summaries of these studies are provided in Table 1. Because of the variation in samples and instrumentation in this line of research, care has been taken to explicitly include these considerations in displaying these studies. The studies presented here demonstrate the myriad of samples and instruments used in the study of the achievement motivation of entrepreneurs. Many researchers subsequent to the work of McClelland have demonstrated a positive relationship between achievement motivation and entrepreneurship.

Hornaday and Bunker (1970) undertook a pilot study of 20 males as the first step in a research program to systematically determine the importance of several characteristics which had been suggested in previous research, and to identify and assess additional characteristics which could be important in identifying the successful entrepreneur. The researchers used a structured interview and three objective instruments to gather data. For the purposes of the study, success was defined as an individual who had started a business and continued for a period of at least five years. Using the Edwards Personal Preference Schedule (EPPS), the researchers found that male entrepreneurs scored considerably higher than norms on the achievement scale. Yet, because of the small sample size, inconsistencies in the selection and application of tests, and no statistical analysis, the reported results must be
Table 1

Selected Empirical Research of Achievement Motivation and Entrepreneurs

<table>
<thead>
<tr>
<th>Researcher(s)</th>
<th>Sample</th>
<th>Measure(s)</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>McClelland (1961)</td>
<td>U.S., Italian, Turkish, and Polish managers (N = 31, 68, 17, 31, respectively) and staff specialists (N = 31, 107, 48, 48, respectively)</td>
<td>TAT</td>
<td>All but Turkish managers (entrepreneurs) higher than specialists</td>
</tr>
<tr>
<td>McClelland (1965)</td>
<td>U.S. white male college students (N = 55)</td>
<td>TAT</td>
<td>High need for achievement associated with occupations of an &quot;entrepreneurial&quot; nature</td>
</tr>
<tr>
<td>Meyer, Walker &amp; Litwin (1961)</td>
<td>&quot;Entrepreneurial&quot; managers of shop operations (N = 31) and &quot;non-entrepreneurial&quot; staff specialists (N = 31)</td>
<td>TAT</td>
<td>&quot;Entrepreneurs&quot; were significantly higher</td>
</tr>
<tr>
<td>Hornaday &amp; Bunker (1970)</td>
<td>Founders of new ventures which are at least five years old and employ at least eight people (N = 20)</td>
<td>EPPS</td>
<td>Founders higher than population norms</td>
</tr>
</tbody>
</table>

TAT: Thematic Apperception Test, projective
EPPS: Edwards Personal Preference Schedule, objective
Table 1 (Continued)

Selected Empirical Research of Achievement Motivation and Entrepreneurs

<table>
<thead>
<tr>
<th>Researcher(s)</th>
<th>Sample</th>
<th>Measure(s)</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hornaday &amp; Aboud (1971)</td>
<td>Same as Hornaday &amp; Bunker, plus whites (N = 20) and blacks (N = 20) with previous sample (total N = 60)</td>
<td>EPPS</td>
<td>Founders higher than population norms; no race differences; gender not analyzed</td>
</tr>
<tr>
<td>Schrage (1965)</td>
<td>Founders of research and development companies (N = 22)</td>
<td>TAT</td>
<td>Founders not consistently higher than norms; High achievement motivation associated with increased profit or loss</td>
</tr>
<tr>
<td>Komives (1972)</td>
<td>Founders of high technology firms (N = 15); all male</td>
<td>GSPV</td>
<td>Founders higher than population norms</td>
</tr>
<tr>
<td>Nandy (1973)</td>
<td>Founders of businesses in Calcutta which were at least five years old (N = 67) and non-business residents of the same area for at least five years (N = 48)</td>
<td>TAT</td>
<td>Entrepreneurial status significantly related to achievement motivation</td>
</tr>
</tbody>
</table>

EPPS: Edwards Personal Preference Schedule, objective
TAT: Thematic Apperception Test, projective
GSPV: Gordon's Survey of Personal Values, objective
Table 1 (Continued)

Selected Empirical Research of Achievement Motivation and Entrepreneurs

<table>
<thead>
<tr>
<th>Researcher(s)</th>
<th>Sample</th>
<th>Measure(s)</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hines (1973)</td>
<td>Owner-managers, engineers, accountants, and middle level managers ($N = 80, 74, 68 &amp; 93$, respectively), all in New Zealand</td>
<td>LAMQ</td>
<td>Entrepreneurs significantly higher than each of the other groups</td>
</tr>
<tr>
<td>DeCarlo &amp; Lyons (1979)</td>
<td>Female business owners, minority ($N = 45$) &amp; non-minority ($N = 77$)</td>
<td>EPPS</td>
<td>Both groups higher than female population norms; non-minority group higher than minority group</td>
</tr>
<tr>
<td>Hull, Bosley &amp; Udell (1980)</td>
<td>Business school alumni, business owners ($N = 57$, further subgrouped: founders ($N = 31$) &amp; non-founders ($N = 26$)) and non-owners ($N = 250$, further subgrouped: high, medium and low likelihood of starting a business ($N = 40, 76 &amp; 184$, respectively)</td>
<td>LAMQ</td>
<td>No significant differences among any of the groups or subgroups</td>
</tr>
</tbody>
</table>

LAMQ: Lynn's Achievement Motive Questionnaire, objective
EPPS: Edwards Personal Preference Schedule, objective
### Table 1 (Continued)

<table>
<thead>
<tr>
<th>Researcher(s)</th>
<th>Sample</th>
<th>Measure(s)</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lachman (1980)</strong></td>
<td>Male Israeli founders (N = 29) and general managers and presidents (N = 25)</td>
<td>MAT</td>
<td>Entrepreneurs higher in achievement motivation</td>
</tr>
<tr>
<td><strong>Scher (1982)</strong></td>
<td>Founders (N = 52) and top and middle level managers (N = 65)</td>
<td>MNQ</td>
<td>Entrepreneurs higher in achievement motivation</td>
</tr>
<tr>
<td><strong>Cromie &amp; Johns (1983)</strong></td>
<td>Irish founders (N = 42) and middle to upper level managers (N = 41); primarily male</td>
<td>LAMQ KAVS</td>
<td>No differences between entrepreneurs and managers</td>
</tr>
<tr>
<td><strong>Ahmed (1985)</strong></td>
<td>Immigrants from Bangladesh in the U.K., founders (N = 71) and non-entrepreneurs (N = 62)</td>
<td>LAMQ</td>
<td>Entrepreneurs higher in achievement motivation</td>
</tr>
<tr>
<td><strong>Begley &amp; Boyd (1987b)</strong></td>
<td>Founders (N = 268) and small business managers (non-founders) (N = 203)</td>
<td>JAS</td>
<td>Founders significantly higher</td>
</tr>
</tbody>
</table>

MAT: Mehrabian Achievement Tendency  
MNQ: Manifest Needs Questionnaire  
LAMQ: Lynn's Achievement Motivation Questionnaire  
KAVS: Kahl's Achievement Values Scale  
JAS: Jenkins Activity Survey
Following the work of Hornaday and Bunker (1970), Hornaday and Aboud (1971) supplemented the original Hornaday and Bunker sample with an additional 40 "successful" entrepreneurs to examine the characteristics of successful entrepreneurs. The authors defined successful entrepreneurs as those who had founded a new business venture which had been established for at least five years and had at least eight employees. Hornaday and Aboud also used a scale from the EPPS to measure the need for achievement in white and black men. The results indicated that compared to men in general, entrepreneurs are significantly higher on scales reflecting need for achievement. Additionally, on self-evaluation scales, the entrepreneurs ranked themselves significantly above average on need for achievement. No significant difference was discovered by race, and gender differences were not analyzed.

Subsequently, Komives (1972) posited that entrepreneurs are high in achievement and decisiveness compared to population norms. Investigating 20 high technology entrepreneurs who tended to be successful, Komives ascertained that these entrepreneurs were indeed high in achievement motivation and decisiveness compared to population norms. These findings were inconsistent with an earlier, comparable study. Schrage (1965), using McClelland's TAT, found that a sample of 22 research and
development scientists did not rank consistently high in need for achievement. There was no apparent comparison group. Wainer and Rubin (1969) questioned the validity of Schrage's findings when they reanalyzed the data with the same protocols. Nevertheless, resolution of these discrepant findings is arduous because the studies of both Komives and Schrage are limited by small sample sizes, and each used different measures of achievement motivation.

Based upon a study of a group of 29 black businesspeople who were owners or managers of small businesses, Durand and Shea (1974) posited that individuals with high achievement motivation tended to engage in more business-related activity than those with a low need to achieve. For the study, the measure of business activity was adapted from Timmons' (1968) study of entrepreneurial activities. The results indicated that individuals with a high achievement motive participated in more entrepreneurial activities than those with a low achievement motive.

A couple of researchers have investigated the achievement motivation of business founders in other countries. Ahmed (1985) studied the achievement motivation of a group of immigrants from Bangladesh who had founded a business in the United Kingdom. While not specifically stated, it appears that those labelled non-entrepreneurs in this study were managers. Ahmed discovered that
entrepreneurs had a higher achievement motivation than did non-entrepreneurs.

Nandy (1973) studied business founders in two Indian subcultures in Calcutta. The sample included individuals who had been in business for at least five years, and individuals who lived in the area for at least five years but were not in business. The results indicated that need for achievement was positively correlated with entry into enterprise, but was not related to entrepreneurial competence. Perry, Meredith and Cunningham (1986) also identified a higher level of achievement motivation of entrepreneurs compared to the general population of Australia.

The aforementioned studies of achievement motivation were primarily limited to men although gender differences may be significant (Mehrabian, 1968). In a review of the literature, Watkins (1982) cited only one study of the motivation of female entrepreneurs. This study was conducted by Schwartz (1976) of female founders, and indicated that achievement was a primary motivation. A couple of subsequent studies have specifically analyzed women.

Waddell (1983) found no significant differences in the achievement motivation of female business owners and female managers, but the female business owners were higher in achievement motivation than were female secretaries. In a
study of 122 minority and nonminority females, DeCarlo and Lyons (1979) found that female entrepreneurs, defined as business owners, scored significantly higher on achievement motivation than did females from the general population. Also, nonminority female entrepreneurs placed a higher value on support, recognition, independence and achievement than did the minority females.

Other studies have shown that need for achievement is not the most important variable for predicting the likelihood of starting a business. Frequently, researchers have studied students who are assumed to be aspiring, or potential entrepreneurs. Borland (1974/1975) surveyed students who intended to become entrepreneurs and those who did not, and found that achievement motivation did not distinguish between the two groups. Sexton and Bowman (1983) used the Personality Research Form (PRF-E) to analyze 401 college students. Using a sample of general business majors, non-business majors and entrepreneurship majors, the authors found that entrepreneurship majors did not score significantly differently than other students on achievement motivation. Yet, the question of whether students' majors are an appropriate surrogate for aspiring entrepreneurs limits the usefulness of this study. Some entrepreneurship majors may not found a business, and some non-entrepreneurship majors may ultimately found businesses.
Potentially more conclusive results were provided by Hull, Bosley and Udell (1980).

Hull et al. (1980) surveyed business school alumni who had founded a business and others who had not. The business owners were subdivided into those who had participated in start-up and those who had not. The researchers also categorized the non-business owners into three groups based upon the likelihood of establishing a business. Hull et al. found that need for achievement did not indicate a difference in the likelihood of starting a business. There were no significant differences among any of the groups.

Comparative Studies of Small Business Owner-Managers and Corporate Managers. Notably, relatively few studies have actually been conducted which compare small business owner-managers and corporate managers on achievement motivation, and the results are mixed. Singh (1970), using a modified TAT, found no significant differences in achievement motivation among eight subgroups of Indian managers and business owners. Cromie and Johns (1983) compared entrepreneurs, defined as those who had started a business, with middle and upper level managers in Ireland. While entrepreneurs scored slightly higher than managers on achievement motivation, the difference was not statistically significant. Despite the findings of these two studies, the preponderance of evidence suggests that entrepreneurs are higher in achievement motivation than are managers.
Schere (1982), using the Manifest Needs Questionnaire, discerned that entrepreneurs were significantly higher in achievement motivation than were middle and top level managers. These results confirmed the findings of Hines (1973), who investigated a group of businesspeople in New Zealand. The researcher discovered that the entrepreneur, someone who owns a business, had higher need for achievement scores than did the engineers, accountants or middle managers. Lachman (1980) identified a discriminant function, including 14 achievement motivation items, which successfully discriminated between individuals who started a new enterprise and those who were general managers and presidents of firms. Subsequent studies have corroborated the hypothesis that entrepreneurs are higher in achievement motivation than are managers (Ray, 1981/1982; Begley & Boyd, 1987a). These findings tend to support the McClelland and Winter (1969) proposition that managers who work for someone else tend to be high in need for power and significantly lower on need for achievement than entrepreneurs.

**Achievement Motivation and Entrepreneurial Success.**

In addition to studies of the correlations between achievement motivation and the decision to become an entrepreneur, some researchers have pursued the investigation of potential associations between achievement motivation and performance. These studies are outlined in Table 2. A host of studies have demonstrated that
Table 2

Selected Studies of Achievement Motivation and Entrepreneurial Performance

<table>
<thead>
<tr>
<th>Researcher(s)</th>
<th>Sample</th>
<th>Measure(s)</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wainer &amp; Rubin (1969)</td>
<td>Owners of research and development firms in business between 4 and 10 years (N = 51)</td>
<td>TAT</td>
<td>Higher growth rates in firms headed by owner with high achievement motivation</td>
</tr>
<tr>
<td>Durand &amp; Shea (1974)</td>
<td>Black small business owners (N = 29)</td>
<td>TAT</td>
<td>Owners with high achievement motivation were more active in business</td>
</tr>
<tr>
<td>Morris &amp; Fargher (1974)</td>
<td>Australian owner-managers (N = 61)</td>
<td>TAT</td>
<td>Higher scores on achievement motivation or creativity were associated with success</td>
</tr>
<tr>
<td>Singh (1978)</td>
<td>Successful and unsuccessful (based on acreage yield) Delhi farmers (N = 40 each group)</td>
<td>TAT</td>
<td>Higher farm output for high achievement motivation group</td>
</tr>
</tbody>
</table>

TAT: Thematic Apperception Test, projective
Table 2 (Continued)

Selected Studies of Achievement Motivation and Entrepreneurial Performance

<table>
<thead>
<tr>
<th>Researcher(s)</th>
<th>Sample</th>
<th>Measure(s)</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smith &amp; Miner (1984, 1985)</td>
<td>Applicants for National Science Foundation Small Business Innovation Research Program Grants; founders of fast-growth firms, founders of slow-growth firms &amp; non-founders (N = 23, 28 &amp; 20, respectively)</td>
<td>MSCS-T</td>
<td>Founders of fast-growth firms significantly higher in total scores, self achievement, feedback of results and personal innovation subscales; no differences between founders of slow-growth and non-entrepreneurs</td>
</tr>
</tbody>
</table>

MSCS-T: Miner Sentence Completion Scale - Form T, projective
Table 2 (Continued)

<table>
<thead>
<tr>
<th>Researcher(s)</th>
<th>Sample</th>
<th>Measure(s)</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carsrud &amp; Olm (1986)</td>
<td>Male business owners (N = 103) and female business owners (N = 246)</td>
<td>WOFO</td>
<td>All WOFO subscales strongly predicted sales for males in the 1-49% ownership category</td>
</tr>
<tr>
<td>Begley &amp; Boyd (1987a)</td>
<td>Founders (N = 147) and non-founding small business managers (N = 92)</td>
<td>EPPS</td>
<td>No significant relationship with financial success</td>
</tr>
<tr>
<td>Johnson (1989/1990)</td>
<td>Small business owner-managers (N = 79)</td>
<td>MSCS-T</td>
<td>MSCS total scores positively correlated with perceived sales growth and return on sales; high self achievement related to higher perceived sales growth, return on sales, employee growth and overall performance</td>
</tr>
</tbody>
</table>

WOFO: Work and Family Orientation Inventory, objective  
EPPS: Edwards Personal Preference Schedule, objective  
MSCS-T: Miner Sentence Completion Scale-Form T, projective
achievement motivation is associated with entrepreneurial success. Perhaps the most fundamental indicator of entrepreneurial success is the founding of the business. Kemelgor (1985) discovered that aspiring entrepreneurs who had been successful in venture start-up were higher in achievement motivation than were aspiring entrepreneurs who had failed in start-up. Potentially, this relates to the Durand and Shea (1974) findings concerning the business activities of those who are higher in achievement motivation.

Wainer and Rubin (1969), using the TAT, determined that a high need for achievement and need for power were correlated with higher firm performance; however, need for achievement alone provided superior predictive efficiency. The link between achievement motivation and firm performance was corroborated by Morris and Fargher (1974), who found that the achievement motivation and creativity of Australian owner-managers were associated with firm performance. Higher scores on either variable were associated with success, and low scores on both were associated with static or declining businesses.

Begley and Boyd (1987a) studied the psychological characteristics of entrepreneurs (founders) and small business managers (nonfounders) which were predicted to be associated with firm performance. Founders scored significantly higher than nonfounders on achievement
motivation, risk taking propensity and tolerance for ambiguity. In terms of performance, a high need for achievement was associated with high return on assets.

Smith and Miner (1984, 1985) studied fast- and slow-growth entrepreneurs. Successful entrepreneurs, those labeled fast-growth, scored significantly higher on need for achievement motives than did the slow-growth entrepreneurs and non-entrepreneurs. There were no significant differences between the slow-growth entrepreneurs and non-entrepreneurs. Smith, Bracker and Miner (1987) extended these research findings by discovering a significant positive correlation between achievement and measures of company success. Despite these results, a caveat to this series of research efforts should be noted. All three studies used Miner's (1982) limited domain theory of individual behavior which is based upon McClelland's (1961) theory of need for achievement. While the two theories may be linked, and both use projective measures of achievement, direct comparison of investigations is not possible (Smith & Miner, 1985).

The study of the relationship between need for achievement and successful entrepreneurial activity has been cross-culturally extended. Singh (1978), in a longitudinal study of farmers in India, found that farmers who had a relatively high need for achievement continued to produce more agricultural output than did farmers with a low need
for achievement. Singh (1978) posited that achievement motivation was a stable characteristic. Also, Sutcliffe (1974) investigated need for achievement and entrepreneurial success of Palestinian farmers in Jordan and Israel. The researcher measured successful entrepreneurial behavior by assessing agricultural innovativeness and income. The need for achievement did not differentiate between successful and unsuccessful farmers. In a study of Australian entrepreneurs, Perry, Meredith and Cunnington (1986) concluded that achievement motivation is important for venture creation, but does not affect subsequent growth.

Carsrud and Olm (1986) posited that the reason for the inconsistent results was that achievement motivation is a multidimensional construct, but researchers have frequently used unidimensional instruments for measurement. The researchers reported the results of two studies which used the Work and Family Orientation Inventory (WOFO), which has three subscales. In the first study, all three WOFO scales were strong predictors of sales for male business owners who were in the one to forty-nine percent ownership category. In the second study, no predictive ability of the WOFO was demonstrated for female business owners.

Summary of Achievement Motivation. In summary, the achievement motivation of the entrepreneur has been widely but inconclusively investigated. While it appears that entrepreneurs exceed managers in achievement motivation, the
findings are equivocal. Brockhaus and Horwitz (1986) concluded that a definitive relationship between achievement motivation and entrepreneurship had not been demonstrated. The assumption that the entrepreneur is higher in achievement motivation than the corporate manager has not been demonstrated. Johnson (1990) suggested that the inconclusiveness of the theorized relationship was a function of the variability of the samples, different operationalizations of the achievement motive and convergent validity problems in instrumentation. It should be noted that the cross-cultural studies of achievement motivation are also susceptible to methodological concerns such as conceptual equivalency, particularly with the use of projective measures of achievement motivation. Johnson concluded that the lack of definitive empirical results was more likely a result of flawed research methodology than the absence of a positive relationship.

Maybe the most pervasive limitation in this stream of research has been the variability and the absence of demonstrated validity, particularly convergent validity, of the measures of achievement motivation. Evidence suggests that achievement motivation measures suffer from poor construct validity and cannot be used interchangeably. For instance, Weinstein (1969) reported only two statistically significant correlations in 21 analyses of pairs of achievement measures. Fineman (1977) found only 22
significant correlations in 78 analyses of achievement measures. In addition to low intercorrelation of measures, Klinger (1966) raised concerns over the low internal consistency and minimal test-retest reliabilities of the measures, a concern reiterated by Weinstein (1969). Of particular concern is the TAT. McClelland (1961) acknowledged that situational differences from occasion to occasion reduced the reliability of the TAT, as did the sensitivity of product-moment correlations to large shifts in score. Entwisle (1972), noting the unreliability of the TAT, actually warned against its further use. According to Entwisle, studies using the EPPS may be more useful because the EPPS is more reliable than the TAT.

Sampling frames have also been problematic. VanderWerf and Brush (1989) suggested that it was tempting to conclude that there was no relationship between entrepreneurship and achievement motivation. Instead, the authors scrutinized the sample selection criteria of the Schrage (1965), Wainer and Rubin (1969) and Begley and Boyd (1987a) studies. When recategorized, the results of the studies which attempted to correlate the achievement motivation of the entrepreneur with company growth rate neatly followed the expectations of an a priori investigation. Nonetheless, the research linking achievement motivation with new venture creation is more conclusive than that which links achievement motivation to entrepreneurial performance (Herron & Robinson, 1993).
Clearly, more research is necessary to prove a definitive link between achievement motivation and entrepreneurship.

Propensity for Risk Taking

Interest in decision making processes has led researchers to study individual orientations toward risk in decision making scenarios (Kusyszyn, 1973). Much of the research in risk orientation is based upon the premise that an individual's risk orientation is pervasive, affecting perceptions and behaviors. Studies generally support the notion that risk taking is predispositional and not simply a situational variable (Plax & Rosenfeld, 1976; Jackson, Hourany & Vidmar, 1972). Jackson et al. (1972) identified four dimensions of risk taking: monetary, physical, ethical and social. While the authors found evidence supporting this multiplicitous risk model, there was also strong evidence for an underlying dimension of risk taking. It is this dimension, a general propensity for risk taking, that has been of interest to researchers of entrepreneurs.

McClelland (1961) believed that a high need for achievement was accompanied by a moderate risk taking propensity. Therefore, because the entrepreneur was high in need for achievement, it follows that the entrepreneur would also have a predisposition toward moderate levels of risk. Notably, the task roles of the entrepreneur and the manager both entail risk taking because both make decisions under conditions of uncertainty. Yet, entrepreneurs are generally
believed to take more risks than do managers (Masters & Meier, 1988) because the entrepreneur actually bears the ultimate responsibility for the decision (Gasse, 1982). In fact, the earliest identified entrepreneurial characteristic was risk taking. In possibly the first reference to the entrepreneur, Cantillon (circa 1700) differentiated between a capitalist and an entrepreneur, portraying an entrepreneur as the individual who assumed the risk for the firm (Kilby, 1971), a perspective echoed by Mill (1848). Mill posited that risk bearing was the quintessential feature which distinguished an entrepreneur from a manager.

Knight (1921) further refined the theory of the entrepreneur as a manager of uncertainty. Knight viewed the entrepreneur as an individual who dealt with the problem of what to do and how to do it under conditions of imperfect knowledge. The reward was profit for exercising what Knight referred to as the ultimate responsibility which cannot be insured, capitalized or salaried. While managers work under relatively detailed employment contracts, the entrepreneur faces a less structured and more uncertain set of possibilities (Bearse, 1982).

Palmer (1971) proffered that risk assessment and risk taking are the primary elements of entrepreneurship. This view is widely held as evidenced by the ubiquity of risk considerations in various definitions of the entrepreneur. Atkinson (1957) proposed that need for achievement was
associated with a preference for moderate probabilities of success and also included the expectancy of success and the perceived consequences of success. Brockhaus (1982) suggested that the two primary considerations in becoming an entrepreneur may be the perceived degree of risk and the perceived likelihood of failure associated with a new venture that is financially unsuccessful. Brockhaus argued that there were three important elements of entrepreneurial risk: the general risk taking propensity of an entrepreneur, the perceived probability of failure for a given new business venture and the perceived consequences of failure. Therefore, truly understanding the risk attitudes of entrepreneurs would require attention to all of the aforementioned elements, but Brockhaus noted the difficulties of studying these variables and their interactions. A good beginning could be to learn more about general risk taking propensity because it could affect other elements of risk taking, particularly expectancies.

One of the earliest studies of risk taking vis-a-vis entrepreneurs was that of Meyer, Walker and Litwin (1966). The entrepreneurial groups indicated a preference for intermediate risk. This confirmed McClelland's (1961) hypothesis that individuals who are high in achievement motivation prefer intermediate levels of risk. This hypothesis was also confirmed by Litzinger (1963), whose less entrepreneurial groups showed a higher preference for
extreme risk, very safe and/or highly speculative. It should be cautioned, however, that the samples in these studies may not be indicative of entrepreneurs. Meyer et al. compared shop operations managers (entrepreneurial) and staff specialists (non-entrepreneurial), whereas Litzinger compared centralized branch bank managers (categorized as less entrepreneurial) and decentralized managers (labelled more entrepreneurial). These studies appear to have been comparing different types of managers, not comparing entrepreneurs with any other group.

Subsequent studies have produced mixed conclusions. Summaries of this research stream are presented in Table 3. Again, because of the variation in samples and instrumentation, careful attention has been given to outlining the studies for the purpose of comparison. Some studies have indicated no significant differences in the risk taking propensities of entrepreneurs as compared to the general population. The most widely cited studies are those of Brockhaus.

Brockhaus and Nord (1979) analyzed 31 entrepreneurs who had initiated a new venture within the past three months, 31 managers who had transferred to another organization and 31 managers who had been promoted in their organizations during the same period of time. Using the CDQ, the authors found no significant differences in risk taking propensity among the three groups. Moreover, there were no differences in
Table 3

Selected Empirical Studies of Risk Taking and Entrepreneurs

<table>
<thead>
<tr>
<th>Researcher(s)</th>
<th>Sample</th>
<th>Measure(s)</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Litzinger (1963)</td>
<td>Decentralized branch bank managers (entrepreneurial) (N = 65) and centralized managers (N = 33)</td>
<td>IPT</td>
<td>'Entrepreneurs' chose intermediate level risks</td>
</tr>
<tr>
<td>Litzinger (1965)</td>
<td>Motel owner-operators (N = 15) and motel operators (N = 15)</td>
<td>Risk Scenarios</td>
<td>No significant differences</td>
</tr>
<tr>
<td>Meyer, Walker &amp; Litwin (1966)</td>
<td>Entrepreneurs (managers of shop operations in manufacturing plants) and staff specialists (No N given)</td>
<td>RPQ</td>
<td>'Entrepreneurs' tended to choose intermediate risks</td>
</tr>
<tr>
<td>Brockhaus &amp; Nord (1979)</td>
<td>New founders, newly hired managers &amp; newly promoted managers (all within 3 months) (N = 31 for each group)</td>
<td>CDQ</td>
<td>No significant differences among the groups</td>
</tr>
</tbody>
</table>

IPT: Investment Preference Test
RPQ: Risk Preference Questionnaire, projective
CDQ: Choice Dilemmas Questionnaire, projective
Table 3 (Continued)

Selected Empirical Studies of Risk Taking and Entrepreneurs

<table>
<thead>
<tr>
<th>Researcher(s)</th>
<th>Sample</th>
<th>Measure(s)</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brockhaus (1980a)</td>
<td>New founders, newly promoted managers, and newly hired managers (N = 31 for all 3 groups)</td>
<td>CDQ</td>
<td>No significant differences among the 3 groups</td>
</tr>
<tr>
<td>Hull, Bosley &amp; Udell (1980)</td>
<td>Business school alumni, business owners (N = 57, further subgrouped: founders (N = 31) &amp; non-founders (N = 26) and non-owners (N = 250, further subgrouped: high, medium and low likelihood of starting a business (N = 40, 76 &amp; 184, respectively))</td>
<td>4-item risk scale</td>
<td>Potential entrepreneurs exhibited greater risk taking</td>
</tr>
<tr>
<td>Schere (1982)</td>
<td>Founders (N = 52) and top and middle level managers (N = 65)</td>
<td>BSAT</td>
<td>Entrepreneurs higher in tolerance for ambiguity</td>
</tr>
<tr>
<td>Sexton &amp; Bowman (1983)</td>
<td>Entrepreneurship majors (N = 61) and non-business majors (N = 113)</td>
<td>JPI PRF-E CDQ</td>
<td>Entrepreneurship majors higher in risk taking</td>
</tr>
</tbody>
</table>

BSAT: Budner Scale of Ambiguity Tolerance, objective  
JPI: Jackson Personality Inventory, objective  
PRF-E: Personality Research Form E, objective  
CDQ: Choice Dilemmas Questionnaire, projective
Table 3 (Continued)

Selected Empirical Studies of Risk Taking and Entrepreneurs

<table>
<thead>
<tr>
<th>Researcher(s)</th>
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<th>Measure(s)</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexton &amp; Bowman (1984)</td>
<td>Entrepreneurship, business &amp; non-business majors (N = 45, 75 &amp; 98, respectively)</td>
<td>JPI, PRF-E</td>
<td>Entrepreneurship majors higher in risk taking</td>
</tr>
<tr>
<td>Schwer &amp; Yucelt (1984)</td>
<td>Owners and small business managers (total N = 71); primarily male</td>
<td>CDQ</td>
<td>No differences in personal risk; other risks mitigated by age and education</td>
</tr>
<tr>
<td>Ahmed (1985)</td>
<td>Founders (N = 71) and non-entrepreneurs (N = 62), all immigrants from Bangladesh in the U.K.</td>
<td>RPS</td>
<td>Entrepreneurs higher in risk taking</td>
</tr>
<tr>
<td>Sexton &amp; Bowman (1986)</td>
<td>Female business students, entrepreneurship majors (N = 54) and functional majors (N = 73); and female owners (N = 105) and female managers (N = 96)</td>
<td>JPI, PRF-E</td>
<td>Entrepreneurship students and owners higher in risk taking</td>
</tr>
</tbody>
</table>

CDQ: Choice Dilemmas Questionnaire, projective  
JPI: Jackson Personality Inventory, objective  
PRF-E: Personality Research Form-E, objective  
RPS: Risk Taking Propensity Scale, objective
<table>
<thead>
<tr>
<th>Researcher(s)</th>
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<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peacock (1986)</td>
<td>Successful (ongoing) and unsuccessful (bankrupt) small business owners (N = 20 each)</td>
<td>CDQ</td>
<td>Both moderate in risk taking</td>
</tr>
<tr>
<td>Begley &amp; Boyd (1987b)</td>
<td>Founders (N = 147) and small business managers (N = 92)</td>
<td>JPI</td>
<td>Founders higher in risk taking than managers; founders higher in tolerance for ambiguity</td>
</tr>
<tr>
<td>Masters &amp; Meier (1988)</td>
<td>Owners or owner-managers and managers (total N = 50, no further information)</td>
<td>CDQ</td>
<td>No differences between owners and managers nor between males and females</td>
</tr>
</tbody>
</table>

CDQ: Choice Dilemmas Questionnaire, projective
JPI: Jackson Personality Inventory, objective
risk taking between any of the three groups and population norms as reported by Kogan and Wallach.

Brockhaus (1980a), using the Kogan-Wallach Choice Dilemmas Questionnaire (CDQ), discovered that risk taking propensity failed to distinguish entrepreneurs from managers. Both groups evinced moderate levels of risk taking. The results substantiated the Brockhaus (1976) findings that entrepreneurs did not differ in their propensity for risk taking from the general population, nor from managers. Furthermore, Brockhaus (1980b), using the same instrument, also discovered that risk taking propensity failed to distinguish between successful and unsuccessful entrepreneurs.

Ray (1986) raised concerns over the findings of Brockhaus (1980a), noting two problems: (1) the variability in the Brockhaus sample and (2) the problems associated with the Wallach and Kogan questionnaire. Ray suggested that because of the variability in the sample, issues of socio-economic class, type of firm and education level could have limited the validity and generalizability of the Brockhaus results. Moreover, according to Ray, the CDQ is ethnocentric and relies on projected assessments of risk which may not provide a valid indication of an entrepreneur's risk taking behavior.

Other researchers have questioned the CDQ. Cartwright (1971) criticized the practice of summing the scores on
individual CDQ items because the CDQ does not measure a unitary disposition. Therefore, because the CDQ cannot be assumed to measure a general disposition to take risks, its use for such purposes may be misleading. In fact, Brockhaus (1980a) had summed the scores on the individual items of the CDQ, leading one to query the validity, or at least, the meaning of the findings. Cartwright cautioned that the significance of research findings is contingent upon the meaning that can be attributed to the choices.

Higbee (1971) raised additional concerns about the CDQ. Higbee determined that people classified as high or low risk takers on the CDQ did not differ in their actual risk taking behavior on tasks. Potentially, this is because respondents are asked to make decisions for another person, not for themselves (Shaver & Scott, 1991). Higbee suggested that the CDQ might be a more appropriate indicator of anticipated, rather than actual, riskiness under complex decision making conditions. Yet, this evaluation may not even be correct given that choice shift makes the CDQ theoretically inappropriate for measuring risk taking propensity (Shaver & Scott, 1991). Notably, all of the aforementioned studies used the CDQ, raising the dilemma that the results are an artifact of measurement. Nonetheless, other researchers, using different measures of risk taking, have supported the supposition that
entrepreneurs are not significantly unique in their propensity for risk taking.

Peacock (1986) used an adaptation of the Opinion Questionnaire to measure risk taking. The researcher found no significant differences in the risk taking patterns of successful and unsuccessful entrepreneurs. Both groups evidenced moderate risk taking patterns.

Masters and Meier (1988) discerned that owners of small businesses and the managers of small businesses did not significantly differ with regard to risk taking propensity, and there were no significant differences in risk taking among males and females. In another study, Litzinger (1965) studied the motel industry and found that the two groups, motel owner-operators and managers in five Arizona cities, did not differ in terms of riskiness per se, nor in the propensity of risk preference toward taking extreme or intermediate risks. Litzinger, however, assessed risk using an investment risk scenario, and the reliability and validity of the measurement was not demonstrated. In fact, the author stated that the risk weights "provided a rough relative measure to distinguish relative risks inherent in the various categories" (p. 270).

Others have discovered a higher propensity for risk taking among entrepreneurs, particularly when confronted with business risk (Ray, 1986), but moderated by business experience, age, education and type of business (Schwer &
Yucelt, 1984). Colton and Udell (1976), in a study of university alumni, discerned that risk taking, along with creativity and flexibility, is a better indicator of the likelihood of starting a business than is achievement motivation. Research has also shown that entrepreneurs evince low uncertainty avoidance irrespective of culture (McGrath, MacMillan & Scheinberg, 1992). Therefore, entrepreneurial attitudes toward risk in decision making may not be bound by culture.

A research program by Sexton and Bowman (1983, 1984), using a different test instrument than Brockhaus (1980a, 1980b), showed that significant differences in risk taking propensity existed between entrepreneurship majors and other business majors. Also, the researchers developed a modified test instrument based upon the Jackson JPI/PRF-E, which included measurement of those traits which had previously been found to be statistically significant. Here, entrepreneurship majors scored significantly higher in risk taking than did business administration majors and non-business majors.

Sexton and Bowman (1985) concluded from their series of research efforts that a higher propensity for risk taking was a characteristic which delineated entrepreneurs from managers. Further evidence was provided for this assertion by Sexton and Bowman (1986), who corroborated that entrepreneurship students have a higher propensity for risk
taking than do business students. Moreover, female entrepreneurs scored significantly higher in risk taking than did female managers.

Hull et al. (1980) used a four-item risk questionnaire and found that individuals with at least some ownership in a business scored significantly higher in risk taking than those individuals who had no ownership. Moreover, those who were involved in the creation of a new venture evinced higher risk taking than owners who were not involved in start-up. This finding was confirmed by Begley and Boyd (1987b) who determined that founders had a higher risk taking propensity and tolerance for ambiguity than did the nonfounders who were managing the small business. Others have corroborated that entrepreneurs take moderate or higher risks as compared to non-entrepreneurs (Liles, 1974; Broehl, 1978).

Summary of Risk Taking. In summary, while the subject of risk taking is pervasive in conceptual discussions of the entrepreneur, the empirical evidence concerning the risk taking propensities of entrepreneurs is mixed. Despite the attention to the risk attitudes of entrepreneurs, researchers are undecided about the role of the risk taking propensity of entrepreneurs (Brockhaus, 1987). As with achievement motivation, researchers have used widely varied definitions of the entrepreneur and measures of risk taking in the investigations. Many of the researchers have relied
upon the CDQ, an instrument that has been characterized as
dubious in reliability and validity, to measure risk taking.

The same is true of conceptual discussions of the
entrepreneur. Palmer (1971) suggested that the necessity of
making decisions under conditions of uncertainty is a
relatively consistent element of the entrepreneurial
function; therefore, an individual's willingness to deal
with uncertainty appears to be an appropriate measure of
entrepreneurial potential. Yet, authors are not unanimous
in this view. Schumpeter (1934) posited that the burden of
risk was inherent in ownership, and because entrepreneurs
were not necessarily owners, the propensity for assuming
risk should not be included as an entrepreneurial trait.
Instead, according to Schumpeter, the central characteristic
of entrepreneurship is innovation.

Preference for Innovation

Innovation appears repeatedly in the academic lexicon
concerning the entrepreneur. In the entrepreneurship
literature, as in the literature concerning organizational
innovation, the terms creativity and innovation are
frequently used synonymously. Any distinction between
innovation and creativity may be the result of emphasis
rather than of substance (Mumford & Gustafson, 1988; West &
Parr, 1990). There is broad agreement that a common set of
personality characteristics describe creative people (Barron
& Harrington, 1981), resulting in calls for more attention
to individual and psychological perspectives in studying innovation (West & Farr, 1989). West and Farr (1989) described individual innovation as the implementation of new and different objectives, methods, working relationships and skills.

Drucker (1985) defined systematic innovation as the purposeful and organized search for changes, and the systematic analysis of the opportunities such changes might offer for economic or social innovation. Drucker advised that systematic innovation requires monitoring seven sources for innovative opportunity. Four of these sources are endogenous to the organization or the industry: the unexpected, incongruity, process needs and changes in industry or market structure. The remaining three sources are exogenous to the organization: demographic changes, changes in perception, mood and meaning and new knowledge. Drucker noted that none of these seven areas is inherently more important or productive than the others.

Schumpeter's (1934) view of entrepreneurial innovation is rooted in the classic theories of economists such as Say and Marshall (Hornaday, 1992). Schumpeter hypothesized that innovation was the single constitutive entrepreneurial function (Kilby, 1971). This distinction, according to Schumpeter, separated acts of entrepreneurship from the more common managerial activities which are non-entrepreneurial. Entrepreneurs innovate by uniquely combining means of
production, by discovering new products, markets or methods of manufacturing or distribution, by identifying new sources of material or by generating new forms of organization (Schumpeter, 1934). These types of innovation are the essential results of entrepreneurial activities (Zaltman, Duncan & Holbek, 1973). According to Schumpeter, entrepreneurs organize new ventures, then become owner-managers when the business is established. Nonetheless, because entrepreneurs are confronted by numerous challenges and problems, innovativeness in problem solving is a major issue (Brockhaus & Horwitz, 1986).

Drucker (1985) actually defined entrepreneurship as innovation in a business setting as the entrepreneur generates new capacity for wealth from limited resources. Drucker likened innovation to Say's definition of entrepreneurship, stating that both change the yield of resources. According to Drucker, innovation is the specific instrument of entrepreneurs; the means by which they exploit change as an opportunity for a different business or a different service. From this perspective, not all business owners are entrepreneurs if they do not create new satisfaction or stimulate new consumer demand. Likewise, members of large organizations may be entrepreneurs if they do create new satisfaction or consumer demand.

In the literature, innovation remains a frequently identified functional characteristic of entrepreneurs (e.g.,
McClelland, 1961; Hornaday & Aboud, 1971; Timmons, 1978; Brockhaus, 1982; Carland et al., 1984; Corman, Perles & Vancini, 1988; Gartner, 1990). Hornaday (1992) included innovation as one of the three dimensions of entrepreneurial activity, along with organization creation and profit seeking. Timmons (1978) suggested that creativity and innovation were conditions inherent in the role of entrepreneurship. Timmons (1990) noted that managers and entrepreneurs are comparable in general management skills, business know-how and networks. It is creativity and innovation which separate the two.

Olson (1985) included invention, an activity analogous to innovation, as a primary entrepreneurial activity. This contention was intensified by Carland et al. (1984), who proposed that innovation was the critical factor in distinguishing entrepreneurs from managers and small business owners. Swayne and Tucker (1973) also believed that entrepreneurs are more innovative than managers. In fact, innovation has been the integral component in the definition of the entrepreneur proposed by a number of theorists (see also, Hagen, 1962; Longnecker & Shoen, 1975; Harwood, 1982; Siropolis, 1986). Hornaday (1992) deftly illustrated that while innovation is a necessary element of entrepreneurship, it is insufficient alone to fully circumscribe entrepreneurial behavior because of the broad parameters of the function. Despite the often stated
significance of creativity and innovation vis-a-vis entrepreneurs, relatively few studies have empirically investigated the proposed relationship. These studies are summarized in Table 4.

Some promising research has been conducted which was based upon Kirton's (1976, 1987, 1989) Adaption-Innovation (KAI) Theory, which elucidates different cognitive styles of creativity, problem-solving and decision making in the context of organizations. Kirton's theory focuses upon the style by which people create, solve problems and make decisions. The individual's style is based on a continuum with extreme adaption at one pole and extreme innovation at the other pole. Innovators are more likely to change the context of the situation in generating solutions, to generate novel solutions, to prefer less structured work environments and to focus on effectiveness rather than efficiency.

A series of studies using the KAI have been conducted in organizations. Managers from departments that focus on efficiency and internal processes such as production and accounting have more adaptive KAI scores than the population mean (Thomson, 1980; Kirton, 1989; Kirton & Pender, 1982; Foxall, 1986; Foxall, Payne, Taylor & Bruce, 1990; Gul, 1986; Holland, 1987). Alternatively, managers from departments where goals do not focus upon efficiency, and which require more boundary spanning such as sales,
Table 4

Selected Empirical Studies of Preference for Innovation and Entrepreneurs

<table>
<thead>
<tr>
<th>Researcher(s)</th>
<th>Sample</th>
<th>Measure(s)</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kets de Vries (1977)</td>
<td>Business owner-managers (N = 40)</td>
<td>NA</td>
<td>Entrepreneurs are innovative</td>
</tr>
<tr>
<td>Carland (1982)</td>
<td>Business owner-managers (N = 77)</td>
<td>JPI</td>
<td>Entrepreneurial venture owners more innovative</td>
</tr>
<tr>
<td>Sexton &amp; Bowman (1983)</td>
<td>Entrepreneurship majors (N = 61) and non-business majors (N = 113)</td>
<td>JPI</td>
<td>Entrepreneurship majors higher in innovation</td>
</tr>
<tr>
<td>Sexton &amp; Bowman (1984)</td>
<td>Entrepreneurship, business &amp; non-business majors (N = 45, 75 &amp; 98, respectively)</td>
<td>JPI</td>
<td>Entrepreneurship majors higher in innovation</td>
</tr>
<tr>
<td>Smith &amp; Miner (1983, 1984, 1985)</td>
<td>Fast-growth founders (N = 23), slow-growth founders (N = 28), and non-founders (N = 20)</td>
<td>MSCS-T</td>
<td>Founders of high growth firms were higher in personal innovation; entrepreneurs tend to desire innovative solutions</td>
</tr>
</tbody>
</table>

JPI: Jackson Personality Inventory  
MSCS-T: Miner's Sentence Completions Scale-Form T
Table 4 (Continued)

Selected Empirical Studies of Preference for Innovation and Entrepreneurs

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>Robbins (1986/1987)</td>
<td>Founders, intrapreneurs &amp; middle level managers (N = 78, 48 &amp; 84, respectively)</td>
<td>JPI</td>
<td>Entrepreneurs more innovative than managers</td>
</tr>
<tr>
<td>Carland, Carland, Hoy &amp; Boulton (1988)</td>
<td>Small business owner-managers (N = 77), divided into entrepreneurs and small business owners</td>
<td>PM</td>
<td>Entrepreneurs have a higher preference for innovation than do small business owners</td>
</tr>
<tr>
<td>Goldsmith &amp; Kerr (1991)</td>
<td>Entrepreneurship students (N = 34) and a control group of business students not in the entrepreneurship program (N = 24)</td>
<td>KAI</td>
<td>Entrepreneurship students more innovative</td>
</tr>
<tr>
<td>Buttner &amp; Gryskiewicz (1993)</td>
<td>Founders who were also owner-managers (N = 81)</td>
<td>KAI</td>
<td>Entrepreneurs significantly more innovative than U.S. managers</td>
</tr>
</tbody>
</table>

JPI: Jackson Personality Inventory  
PM: Patchen Measure  
KAI: Kirton Adaption-Innovation

Some researchers have used the KAI to study entrepreneurship. For instance, Dewan (1982) used the KAI to study entrepreneurs and managers in Iran and India. The results indicated that entrepreneurs in the two countries tended to be more innovative than comparable managers. Both groups were more innovative than government officers. Goldsmith and Kerr (1991) sought to apply KAI Theory to entrepreneurship to determine if the KAI could be useful in predicting entrepreneurial tendencies. The results indicated that entrepreneurship attracts people who tend to be more innovative in adaption-innovation terms. The significance of their findings is, however, tempered by the fact that they used a relatively small sample (N=34) of students in an undergraduate entrepreneurship class, as compared to other students and the population average. Buttner and Gryskiewicz (1993) actually used the KAI to compare entrepreneurs, those who founded, owned and actually managed the business, to managers. The authors concluded that the entrepreneurs were significantly more innovative than the managers of large organizations. In sum, even though the validity and factor structure of the KAI have
been questioned (Torrance & Horng, 1980; Payne, 1987; Goldsmith & Matherley, 1987), these studies suggest a discernible prevalence of innovativeness in the psychological predisposition of entrepreneurs. Other studies provide concurring evidence.

Kets de Vries (1977) conducted in-depth interviews with 40 entrepreneurs. The researcher found that entrepreneurs are innovative, taking novel approaches to situations during the course of conducting their business. In two investigations, Sexton and Bowman (1983, 1984) empirically verified de Vries' supposition using students as "potential entrepreneurs" and "potential managers". Entrepreneurship students scored significantly higher in innovativeness than general business majors in both studies, leading the authors to conclude that innovativeness was one of the characteristics which differentiated the aspiring entrepreneur from his or her aspiring corporate counterpart. These results have been further supported by Robbins (1986/1987), who found that entrepreneurs scored significantly higher than managers on preference for innovation.

Carland, Carland, Hoy and Boulton (1988), in a study of small business founders, investigated the preference for innovation of two groups based upon the work of Schumpeter (1934) and extended by Carland et al. (1984). Entrepreneurs found a business principally for profit and growth, utilize
strategic management practices and tend to display innovative behaviors. Alternatively, small business owners found a business primarily as an avenue of personal goal attainment and family income. The researchers discovered that the entrepreneurs demonstrated a significantly higher preference for innovation than small business owners. No significant differences were discovered for achievement motivation, social status or power. This confirmed an earlier study by Carland (1982) which used the same owner-manager distinctions. Carland observed no differences in achievement needs, social status or power, but the entrepreneurial venture owners exhibited a higher preference for innovation than the other group.

Smith and Miner (1983) discovered that founders of rapidly growing firms ranked significantly higher in personal innovation than individuals in managerial positions. Subsequently, Smith and Miner (1984) found that entrepreneurs expressed a desire to introduce novel, innovative or creative solutions. Both of these studies support the widely held assumption that entrepreneurs tend to be more innovative in their predispositions than do their corporate counterparts.

Brockhaus and Horwitz (1986) believed that research supports the contention that entrepreneurs are creative, but not necessarily more innovative than managers. Yet, research indicates that the career patterns of entrepreneurs
are circumscribed by opportunities for creativity and innovation (Pickel, 1964; Collins & Moore, 1964; Bendit, 1970; Lippitt & Schenck, 1972). Alternatively, managers' careers tend to be anchored by competence and efficiency (Schein, 1975).

Summary of Preference for Innovation. The research which investigates the innovativeness or creativity of the entrepreneur is limited in quantity and diversity as compared to the study of achievement motivation and risk taking. Potentially, this sparsity is a function of the relatively recent emphasis on innovation in the organization science literature. Yet, this line of inquiry holds promise for furthering understanding of the entrepreneur. Tyler (1978) argued that creativity is a function of recognizing possibilities. In a business context, the entrepreneur is unsurpassed in recognizing possibilities and opportunities.

Interrelationships Among Achievement Motivation, Risk Taking and Innovativeness

Linkages Between Risk Taking and Achievement Motivation. Numerous studies have explored the interrelationships of achievement motivation and risk taking. Many of these studies have been largely based upon the work of Atkinson (1957). Atkinson demonstrated that a risk situation where the chances of success are approximately even is most attractive to a person who is strongly motivated to achieve. Atkinson (1964) believed
that high achievers prefer situations of intermediate risk, while low achievers prefer relatively low or high risk situations. These propositions have been supported in empirical studies.

In a study of school children, McClelland (1958) found that achievement motivation was significantly related to the tendency to prefer moderate rather than extreme risks on a ring toss game. In separate studies of college students, Atkinson and Litwin (1960), Atkinson, Bastian, Earl and Litwin (1960) and Litwin (1958) found that high need for achievement was related to a preference for intermediate level risks in game situations. Meyer, Walker and Litwin (1961) studied two groups of managers labelled entrepreneurs and non-entrepreneurs based upon the initiation of decisions, individual responsibility assumed for the decisions and the amount of risk the job entailed. The "entrepreneurs" scored significantly higher in need for achievement than did the non-entrepreneurial specialists, and the "entrepreneurial" managers tended to prefer intermediate odds in risk taking.

Mehrabian (1968) posited that the level of achievement motivation affected an individual's attitude toward the outcomes of risky situations, and therefore, the individual's proclivities toward risk. The researcher stated that high achievers are individuals who have a stronger motive to achieve relative to the motive to avoid
failure, while alternatively, low achievers have a stronger motive to avoid failure relative to their motive to achieve. Positive correlations between achievement motivation and risk taking propensity have also been shown by Ahmed (1985).

**Linkages Between Risk Taking and Innovativeness.**

Studies of the relatedness between risk taking and innovation are sparse and mixed. Drucker (1985) believed that innovation was inherently risky. He also believed that successful innovators are conservative and not "risk-focused", but "opportunity-focused". Nonetheless, it has been empirically demonstrated that Kirton's innovators are more likely to take risks than are the adaptors (Goldsmith, 1984, 1986, 1989). In the decision making, problem solving context where the individual was innovative, Kirton (1986) described the core characteristics of creative style as self-confident, risk taking, sensation seeking, impulsive, original and non-conformist. The resolution of this theoretical discrepancy may lie in the multiplicitous concept of creativity.

Goldsmith (1987) hypothesized that there may be two dimensions of creativity, ability and style, and individuals may differ on both dimensions. In fact, pure measures of creative ability and creative style might be orthogonal. Goldsmith used data from 96 college students to blend theories of organizational decision making and problem solving with creativity, and to test this supposition.
Using correlations and factor analysis of five measures, one specifically for risk taking, Goldsmith found that risk taking is related to creative style where equally creative people could have different inclinations to take risks. Therefore, risk taking could be included in a list of descriptive adjectives for creative style which includes intuitive, confident, curious, imaginative, original and adventurous (Yarnell, 1971; Barron & Harrington, 1981). Nevertheless, the results of this study are limited by the sample, and the findings can only be considered tentative.

Howell and Higgins (1990) also investigated the relationship between innovativeness and risk taking as personality factors which influence innovation champions. The innovation literature has likened innovation champions to intrapreneurs and entrepreneurs (Collins & Moore, 1970; Maidique, 1980; Pinchot, 1985) and described champions as risk takers (Schon, 1963; Cox, 1976). Howell and Higgins found that champions were significantly higher in achievement, risk taking and innovativeness. Innovativeness was significantly intercorrelated with risk taking, as was innovativeness and achievement ($p < .01$). Therefore, there appears to be a connection between creativity or innovativeness and risk taking.

No studies in entrepreneurship have investigated the interaction between innovation and risk taking in explaining the predisposition of the entrepreneur. Ray (1986) called
for such research. Ray believed that innovation inherently involves considerable risk, particularly when business behavior is deeply rooted in cultural norms.

Linkages Between Achievement Motivation and Innovativeness. Morris and Fargher (1974) extended the traditional study of the effects of achievement motivation on entrepreneurship by including a measure of creativity as an additional correlate. The authors proposed that high achievement drive and its relationship with business success is mediated by a cognitive style which generates flexible, creative ways of dealing with problems. According to the researchers, this cognitive style is conceptually analogous to creativity or innovativeness. While both achievement motivation and creativity were associated with performance of small business under the control of the owner-manager, the nature of the relationship between achievement motivation and creativity was not specifically tested.

Barron and Harrington (1981), in a review of the creativity literature, discerned that there was a definitive set of personality characteristics associated with creativity irrespective of field of endeavor. Among these characteristics was a concern with work and achievement. While the potential linkage between achievement motivation and innovativeness is intuitively and conceptually appealing, scant empirical evidence of the relationship exists.
Individual and Firm Demographic Characteristics

The demographic characteristics of both the individual and the firm are of importance in this study. The demographic characteristics of individual entrepreneurs have generated substantial research. Summaries of the major propositions concerning the demographic characteristics of the entrepreneur are outlined in Table 5. The age of the entrepreneur at the time of new venture creation has been of particular interest.

Age

In general, entrepreneurs have been demographically characterized as between the ages of 25 and 40 when the decision to become an entrepreneur is made (Mayer & Goldstein, 1961; Shapero, 1971; Howell, 1972; Cooper, 1973; Liles, 1974). Yet, Susbauer (1969) discovered that the age of the high technology entrepreneurs in his study did not significantly deviate from the age distribution of the general population, who were between the ages of 25 and 60. Gasse (1982) believed that the age at which new ventures are initiated is widely dispersed.

Education

The education level of the entrepreneur has been of research interest because of the implications of training for the entrepreneur. Generally, entrepreneurs appear to be better educated than the general population, but less educated than managers (Collins & Moore, 1970; Howell, 1972;
Table 5

Selected Summary of the Demographic Characteristics of the Entrepreneur

<table>
<thead>
<tr>
<th>Demographic Characteristic</th>
<th>Proposition</th>
<th>Researcher(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Decision to become entrepreneur typically made between the ages of 25 and 40</td>
<td>Mayer &amp; Goldstein (1961), Shapero (1971), Howell (1972), Cooper (1973), Liles (1974)</td>
</tr>
<tr>
<td>Education</td>
<td>Entrepreneurs are better educated than general population, but are less educated than managers</td>
<td>Collins &amp; Moore (1970), Howell (1972), Brockhaus &amp; Nord (1979), Brockhaus (1982), Gasse (1982), Cooper &amp; Dunkelberg (1981)</td>
</tr>
<tr>
<td>Education and Mode of Entry</td>
<td>Founders are less educated than are non-founding owners</td>
<td>Begley &amp; Boyd (1987b)</td>
</tr>
<tr>
<td>Gender and Education</td>
<td>Female entrepreneurs are better educated than the general population</td>
<td>DeCarlo &amp; Lyons (1979), Hisrich &amp; O'Brien (1981), Humphreys &amp; McClung (1981), Cuba, DeCenzo &amp; Anish (1983)</td>
</tr>
<tr>
<td>Age, Education and Years Owned</td>
<td>Age, education and years business owned moderate risk taking in entrepreneurs</td>
<td>Schwer &amp; Yucelt (1984)</td>
</tr>
<tr>
<td>Race</td>
<td>No significant differences in achievement motivation among minority entrepreneurs</td>
<td>Feldman, Koberg &amp; Dean (1991)</td>
</tr>
<tr>
<td>Race and Gender</td>
<td>Higher achievement motivation in non-minority females</td>
<td>DeCarlo &amp; Lyons (1979)</td>
</tr>
</tbody>
</table>
Moreover, education levels may vary by mode of business entry. Cooper and Dunkelberg (1981) found that a larger percentage of small business owners who start or purchase the organization have less than a college degree compared to those who inherit or are brought in to run the business. Begley and Boyd (1987b) discovered that business founders are less educated than nonfounders. Gasse (1982) reported the results of four studies where entrepreneurs are better educated than the general public. Additionally, the education level tended to vary by industry.

**Gender and Race**

Distinctive differences in entrepreneurs also occur according to gender and race. Brush (1992) hypothesized differences in male and female owned businesses, proposing that women perceive their businesses as cooperative networks of relationships. Humphreys and McClung (1981) studied female entrepreneurs from Oklahoma. The results indicated that female entrepreneurs were more educated than both males and females in general, and more educated than male managers and administrators. Other studies have verified that female entrepreneurs tend to be older (Hisrich & O'Brien, 1981; Cuba, DeCenzo & Anish, 1983) and more educated (Hisrich & O'Brien, 1981) than the general populace or the average adult female (DeCarlo and Lyons, 1979). Wallach and Kogan (1959, 1961) discovered that women are more risk averse than
men, and that age differences influence risk taking. This supposition was supported by Sexton and Bowman-Upton's (1990) finding that female entrepreneurs have a lower risk taking propensity than do male entrepreneurs. Schwer and Yucelt (1984) posited that the risk taking propensities of small business entrepreneurs and managers were different according to the individual's age, education and number of years the business has been owned.

Most studies of entrepreneurs have used samples of Caucasians. Few studies have been systematically conducted to investigate any potential effects of race on the entrepreneur. DeCarlo and Lyons (1979) found that achievement, conformity and benevolence discriminated between minority and nonminority female entrepreneurs. It has also been purported that blacks are relatively low in achievement motivation as compared to whites (Rose, 1956; Rosen, 1959). In a study of achievement motivation in Asian, native American, Hispanic and black entrepreneurs, there were no significant differences among the groups (Feldman, Koberg & Dean, 1991).

Much of the research in demographic characteristics has been conducted using sampling frames either limited by geographic area or by business type (e.g., Mayer & Goldstein, 1961; Hoad & Rosko, 1964; Susbauer, 1972). These efforts have been hampered by external validity concerns.
Fortunately, a few more broadly-based demographic studies have been conducted.

Cooper and Dunkelberg (1987) surveyed 1805 owner-managers and discovered the existence of a distinctive profile. These individuals tended to come from families where the parents owned a business, and tended to be better educated. Perhaps the most inclusive study of the demographic profiles of entrepreneurs was conducted by Petrof (1981), who incorporated eight demographic characteristics with four individual perceptions. Petrof concluded that successful entrepreneurs tended to be first born, relatively older, job stable, technically oriented and experienced in starting a business.

Organizational Demographic Characteristics

Relatively few researchers have investigated the connections between the entrepreneur and the characteristics of the business. Mescon and Montanari (1981) employed a sample of independent and franchise realtors to compare personality characteristics to the type of enterprise founded by the entrepreneur. The authors concluded that the context of the new venture in terms of the type of enterprise, franchise or independent, interacts with sociocultural background to influence the characteristics of the individual who will start a new business.

Schwer and Yucelt (1984) discovered that the risk taking propensities of small business entrepreneurs and
managers were different according to individual characteristics, as well as the size and type of their business. Cooper and Dunkelberg (1981) also demonstrated the potential for entrepreneurs to vary widely in different industries.

Brockhaus and Horwitz (1986), in a review of the psychology of the entrepreneur, stated that one of the major limitations of entrepreneurship research is a failure to identify the type of business being studied. The authors cautioned that the characteristics associated with opening a service business, for example, might be different than those associated with opening a manufacturing business. Therefore, the authors suggested comparing entrepreneurs in several different industries. Deeks (1973) also thought it important to examine owner-managers who had entered the business through different modes.

Summary of Individual and Firm Demographics. While it is arduous to predict who will be an entrepreneur by using demographic variables, these demographic variables are important in the study of personality factors and an entrepreneur's behavior. Although the demographic characteristics of the entrepreneur and the firm are not central to this study, they are important considerations. The first consideration is to heed the calls of Brockhaus and Horwitz (1986) and Cooper and Dunkelberg (1986) for a broadly based study which includes these variables. Second,
because of the potentially confounding effects of individual and firm demographic factors, it is important to control for the effects of these variables in conducting an analysis of the psychological variables of the entrepreneur.

Typologies of Small Business Owner-Managers

A wide range of owner-managers, new business ventures, venture founding processes and new venture environments exists (Gartner, 1985). Researchers have provided typologies of entrepreneurial types based upon owner motivations or management methods (Dunkelberg & Cooper, 1982). Smith (1967) distinguished two types of entrepreneurs, craftsman and opportunistic. According to Smith, the opportunistic owners were broadly educated, varied in work experience, more proactive and likely to develop innovative and diverse competitive strategies. Alternatively, craftsman were narrowly educated, utilized personal relationships in marketing and tended to pursue rigid strategies. Collins and Moore (1970) also differentiated two types of "organization makers", the independent and administrative entrepreneur. The independent entrepreneur creates new ventures, while the administrative entrepreneurs create new organizations within or adjunct to existing business structures.

Other studies have provided more classes of entrepreneurs. For instance, Filley and Aldag (1978), using factor analysis, identified craftsman, promotion and
administration types. The authors discovered that craftsmen were nonadaptive, tended to avoid risk and focused on providing family income. Promotion owners tended to organize informally, pursue a unique competitive advantage and maintain centralized control. Administrative owners were more like professional managers, utilizing planning, formalization and control.

Dunkelberg and Cooper (1982) also discovered three discernible entrepreneurial types: growth oriented, independence oriented and craftsman oriented. The authors likened their growth oriented entrepreneurs to Filley and Aldag's promoters, and their craftsman oriented entrepreneurs to those labelled craftsman in the prior studies. No opportunistic or administrative types were discovered, and the authors' independence oriented entrepreneurs appeared to be a novel group compared to those of previous studies.

These studies demonstrate the variety of entrepreneurs. Clearly, there is no one entrepreneurial type. There may be a significant degree of variation within the population of owner-managers which, if overlooked, limits inquiry (Gartner et al. 1989). Carland et al. (1984), in one of the most frequently cited works in the field, elucidated two distinct types of owner-managers:

1. Entrepreneur: An entrepreneur is an individual who establishes and manages a business for the
principal purposes of profit and growth. The entrepreneur is primarily characterized by innovative behavior, and will employ strategic management practices in the business. The "entrepreneur" approximately corresponds to Filley and Aldag's (1978) promotion entrepreneurs, Dunkelberg and Cooper's (1982) growth oriented entrepreneurs and Smith's (1967) opportunistic entrepreneurs.

2. Small Business Owner: A small business owner is an individual who establishes and/or manages a business for the principal purpose of furthering personal goals. The owner perceives the business as an extension of his or her personality, and the business is the primary source of family income. The small business owner is analogous to the craftsman entrepreneurs of Smith (1967), Filley and Aldag (1978) and Dunkelberg and Cooper (1982).

Carland et al. (1988) subsequently empirically verified the distinction between the entrepreneur and the small business owner. The two types of owner-managers could be distinguished by articulated venture strategies. The entrepreneurs were also characterized by significantly different personality traits and behavioral preferences. Compared to small business owners, entrepreneurs exhibited a significantly higher preference for innovation, a thinking
orientation in decision making, intuition in information gathering and a perception orientation in dealing with people.

Intrinsic in the distinction between the entrepreneur and the small business owner is the purpose of the new venture, which may be linked to entrepreneurial characteristics and planning. Noting a paucity of planning in small firms, Carland et al. (1989) investigated need for achievement, risk taking propensity, preference for innovation and an array of demographic variables with owner-manager strategic planning. The authors discovered that owners who engage in formal, written planning tend to have a higher preference for innovation, a higher propensity for risk taking and a greater need for achievement than do owners who plan informally or who do not engage in planning. Also, owners who developed informal, unwritten plans have a higher propensity for risk taking than owners who did not engage in planning. The authors concluded that personality traits were critical to planning. Applying the Carland et al. (1984) definitions, entrepreneurs plan while small business owners do not plan with the same depth.

Summary of Small Business Owner-Manager Typologies

Typologies are an effective vehicle for developing and presenting theory (Doty & Glick, 1994). Numerous classification systems of small business owner-managers have been proposed. The most completely developed and
empirically investigated typology of small business owner-managers is that presented by Carland et al. (1984). The proposal that small business owner-managers can be classified as entrepreneurs or small business owners inculcates different owner goals and behaviors. Potentially, the entrepreneur or small business owner dichotomy engenders the potential for reconciling the difficulties associated with the term entrepreneur.

Summary of the Literature

In summary, the research in entrepreneurship encompasses a wide array of definitions and variables, often with conflicting findings. In studying the psychological characteristics of entrepreneurs, sampling frames, operationalizations and instrumentation have varied significantly. Additionally, problems have occurred when the studies have lacked clear definitions and comparable samples of entrepreneurs, when small sample sizes limited statistical power, and when inaccuracy, non-reliability and poor construct validity were evident in measurement (Sexton & Bowman, 1984). These conditions led Cooper and Dunkelberg (1987) to caution that examining contrasting findings across the studies requires care. Nowhere are these conditions more evident than in studies of the achievement motivation and risk propensity of entrepreneurs.

Robinson, Stimpson, Huefner and Hunt (1991) argued that the lack of progress in personality research of the
entrepreneur is not due to a lack of psychological characteristics that distinguish entrepreneurs from other people, but to problems with the theories and methods used to identify those characteristics. In fact, when the aforementioned methodological issues have been surmounted, studies of the psychological characteristics of entrepreneurs have yielded statistical relations that are of practical significance and are replicable (Sexton & Bowman, 1984, 1986). Thus, there is a definite need for additional research.

The contradictory findings may also be attributable to studying entrepreneurs at different stages of the entrepreneurial process (Goldsmith & Kerr, 1991). Brockhaus (1982) pointed out the existent bias in the literature toward the successful entrepreneur. This may be a function of convenience because effective, efficient sampling of unsuccessful entrepreneurs is arduous. Nonetheless, the focus on successful entrepreneurs may confuse temporal sequence in the proposed relationships. Brockhaus (1982) suggested that entrepreneurial success may contribute to a higher achievement motivation, rather than the reverse. Similar arguments are also feasible for risk taking propensity and preference for innovation.

Because much of the research has investigated small numbers of entrepreneurs in limited types of businesses in particular areas, Cooper and Dunkelberg (1987) called for
broadly-based research to provide bases of comparison. Cooper and Dunkelberg (1987) urged inquiry into business owners in many industries, at different times and in different parts of the country. This call for a broad research effort reiterates that made by Brockhaus and Horwitz (1986). Such research might also provide more understanding of different types of entrepreneurs.

Understanding why individuals behave in particular patterns is as important in entrepreneurship as it is in other areas of the behavioral sciences (Gartner, Bird & Starr, 1992). Johnson (1990) believed that careful study of the individual, including his or her psychological profile, is important because the entrepreneur is the energizer of the entrepreneurial process. Studies of individual differences which might affect the founding and performance of new ventures have been limited of late (Shaver & Scott, 1991; Chandler & Hanks, 1994). At this time, no definitive conclusions about the entrepreneur can be confidently drawn. Nonetheless, the preponderance of the evidence suggests that there are potential correlates between psychological features and the entrepreneur, as well as different types of entrepreneurs. The proposed research framework, based upon the review of the literature, is presented in Figure 1.
FIGURE 1
Research Framework

Achievement Motivation

Risk Taking Propensity

Preference for Innovation

Type of Organization

Demographic Factors
- Age
- Education
- Gender
- Race

Business Behavior
- Corporate Managers
- Small Business Owner-Managers
Hypotheses

The review of the literature provides a foundation for the specification of hypotheses concerning the psychological constructs of interest in this study. The following hypotheses are grouped according to the psychological constructs and are constructed so that different types of small business owner-managers are investigated. The entrepreneur focuses on profit and growth and more fully utilizes strategic management principles than does the small business owner. The small business owner views his or her firm as an extension of his or her personality and the primary goal is family income. Therefore, differences in entrepreneurs and small business owners are proposed, and both groups are compared to corporate managers.

Achievement Motivation

The research of McClelland (1961, 1965), Hornaday and Aboud (1971) and Nandy (1973) indicates that entrepreneurs tend to have a higher achievement motivation than the population norm. Studies which have specifically compared entrepreneurs with managers converge upon a comparable conclusion. Studies by Hines (1973), Lachman (1980), Schere (1982), Ahmed (1985) and Sexton and Bowman (1986) indicate that entrepreneurs are higher in achievement motivation than are corporate managers. The contradictory studies, those by Singh (1970), Cromie and Johns (1983) and Sexton and Bowman (1983), are clouded by questions of instrument荣获和
sample choice. Also, those studies which indicate that high achievement motivation is correlated with performance (Wainer and Rubin, 1969; Morris and Fargher, 1974; Begley and Boyd, 1987b; Smith and Miner, 1983, 1984; Smith et al., 1987; Carsrud and Olm, 1986) could be construed to indicate that not only will the achievement motivation of the entrepreneur influence the ownership decision, but will also influence the viability of the organization, and thus, the durability of the entrepreneur. Based upon these findings, the following hypothesis is proposed:

H1a. Entrepreneurs will demonstrate a greater need for achievement than will corporate managers.

Numerous types of entrepreneurs have been identified in the entrepreneurship literature. This study utilizes the aforementioned Carland et al. (1984) distinction between entrepreneurs and small business owners. The common factor among these two types of individuals tends to be the fact that all are owner-managers of their organizations. In studies of the small business owner-manager, both of the Carland et al. types have generally been defined as entrepreneurs. Given this definitional approach in the literature, the following hypothesis is proposed:

H1b. Small business owners will demonstrate a greater need for achievement than will corporate managers.

One of the primary differences between entrepreneurs and small business owners is the goal for the business. The goals of profit and growth which are associated with the
entrepreneur may indicate a different achievement motivation than that of the small business owner who focuses on family income. This difference in goals could be related to the difference in the planning practices of entrepreneurs and small business owners. The planning practices of entrepreneurs are more extensive than those of small business owners. Based upon the Carland et al. (1989) discovery that a greater achievement motivation is associated with a higher degree of planning, the following hypothesis is suggested:

H1c. Entrepreneurs will display a greater achievement motivation than will small business owners.

Risk Taking Propensity

The literature concerning the risk taking propensity of entrepreneurs is probably more mixed in its indications than any other stream of research devoted to the psychological dispositions of the entrepreneur. As with achievement motivation, variation in instrumentation and sampling may be the source of confusion. Meyer et al. (1966) and Litzinger (1963) actually seemed to be comparing different types of managers. The studies by Brockhaus (1980a), Litzinger (1965) and Peacock (1986) are subject to question based upon instrumentation. The evidence presented by Colton and Udell (1976), Sexton and Bowman (1983, 1984), Ahmed (1985) and Ray (1986) indicates that entrepreneurs are significantly different in their risk taking profiles. Based upon these
findings and the rich conceptual discussions of risk taking and the entrepreneur, the following hypothesis is proposed:

H2a. Entrepreneurs will exhibit a higher risk taking propensity than will corporate managers.

Again, because of the focus on ownership and management of the organization in definitions of the entrepreneur, both of the Carland et al. (1984) small business owner-managers, entrepreneurs and small business owners, have been included under the moniker of entrepreneur. Because of this broad inclusion, and the research evidence in the literature, the following hypothesis is proposed:

H2b. Small business owners will exhibit a higher risk taking propensity than will corporate managers.

Carland et al. (1984) suggested that small business owners would not engage in any new marketing or innovative practices. Alternatively, the authors intimated that the entrepreneur, because of the focus on profits and growth, would be more likely to pursue new avenues for the business and would engage in more extensive planning. Perhaps this explains the Carland et al. (1989) finding that a higher propensity for risk taking is associated with more meticulous planning. Based upon this premise, the following hypothesis is proposed:

H2c. Entrepreneurs will exhibit a higher risk taking propensity than will small business owners.

Preference for Innovation

There is a long history of theorizing about the creativity or innovativeness of the entrepreneur. Only
relatively recently has empirical study been undertaken to test the ubiquitous belief that a preference for innovation is a distinguishing characteristic of the entrepreneur. Potentially, the relatively recent and sparse inquiry explains the general consensus that the entrepreneur tends to be more innovative than the corporate manager. Based upon the studies by Colton and Udell (1976), Carland (1982), Sexton and Bowman (1983, 1984), Smith and Miner (1983, 1984), Robbins (1986/1987), Goldsmith and Kerr (1991) and Buttner and Grysiewicz (1993), the following hypothesis is proposed:

H3a. Entrepreneurs will display a higher preference for innovation than will corporate managers.

As with the previous psychological constructs, researchers have investigated the predisposition for innovation of a wide range of business owner-managers. Therefore, based upon the research evidence and the inclusion of many types of small business owner-managers in the aforementioned studies, the following hypothesis is proposed:

H3b. Small business owners will display a higher preference for innovation than will corporate managers.

Carland et al. (1984) contended that one of the major distinctions between entrepreneurs and small business owners is innovation. The authors suggested that the entrepreneur was characterized by a preference for creating activity which is manifested by some innovative combination of
resources for profit. This hypothesis was supported by Carland et al. (1988) in the finding that entrepreneurs exhibit a higher preference for innovation than do small business owners, suggesting the following hypothesis:

H3c. Entrepreneurs will display a higher preference for innovation than will small business owners.

The Interaction of Psychological Factors

Few studies have investigated any interaction effects in the psychological constructs which have been studied as predictors of entrepreneurship. Based upon the theoretical evidence suggesting a relationship between achievement motivation and risk taking (Atkinson, 1957, 1958; Atkinson & Litwin, 1960; Atkinson et al., 1960; McClelland, 1961; Meyer et al., 1961; Mehrabian, 1968) and between risk taking and innovation (Drucker, 1985, Kirton, 1986; Goldsmith, 1984, 1986, 1987, 1989; Howell & Higgins, 1990), interactions between these two sets of psychological constructs are also tested.

Chapter Summary

Provided in this chapter was a review of the three primary psychological constructs which are most prevalent in theorizing about the entrepreneur. These constructs are achievement motivation, risk taking propensity and innovativeness. In addition to examining linkages among the psychological constructs, a review of the effects of individual and firm demographic characteristics upon the
entrepreneurial decision was provided. Concluding the
literature review was a presentation of different types of
small business owner-managers. Based upon the review of the
literature, the research framework was presented, followed
by explication of the hypotheses for the study.
CHAPTER III

RESEARCH PROCEDURE AND METHODOLOGY

Smith, Gannon and Sapienza (1989) offered several factors for consideration by entrepreneurship researchers in selecting a research approach. These factors included the objective of the research. One hallmark of a good research hypothesis is that it suggests which form of research design is likely to be most appropriate (Emory, 1985). The nature of the hypotheses for this study suggests that the most advantageous research design is a survey. In view of these considerations, a questionnaire composed of individual and firm demographic questions, and scales pertaining to achievement motivation, preference for innovation and risk taking propensity was assembled.

This chapter is devoted to outlining the methodological elements and procedures of the study. Particular emphasis is placed on the elements of sampling, instrumentation and analysis. An overview of the methodological procedures is provided in Table 6.

The Sample and Procedure

Proper sampling is particularly crucial in this study because of the aforementioned problems associated with the definition of an entrepreneur. Gartner (1989) cautioned
Table 6

Summary of Major Elements of Research Procedures

<table>
<thead>
<tr>
<th>Procedural Element</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td><strong>Sampling</strong></td>
<td>Convenience sample where sampling was conducted by graduate business students, resulting in a sample of 767 owner-managers of small businesses and corporate managers.</td>
</tr>
<tr>
<td><strong>Instrumentation</strong></td>
<td>Instrument contains the Achievement Motivation Scale of the Personality Research Form (Jackson, 1967), the Risk Taking and Innovation Scales of the Jackson Personality Inventory (Jackson, 1976) and questions pertaining to individual and firm demographics and owner goals and planning practices.</td>
</tr>
<tr>
<td><strong>Dependent Variable Categorization</strong></td>
<td>Small business owner-managers classified as either entrepreneurs or small business owners (Carland et al., 1984) and firms classified as small or large businesses using the Small Business Administration definitions. Both categorized by a panel of experts.</td>
</tr>
<tr>
<td><strong>Data Analysis</strong></td>
<td>First step is a confirmatory factor analysis of the small business owner-manager categorization using owner goals and planning practices (Carland et al., 1984). Second step is a hierarchical set multinomial LOGIT regression analysis to evaluate the research model and test hypotheses.</td>
</tr>
</tbody>
</table>
that careful selection of samples of entrepreneurs and non-entrepreneurs assists in identifying and controlling for variation. Gartner believed that careful attention to sampling was imperative for research in entrepreneurial traits so that the sample would most appropriately represent the types of individuals who are to be investigated.

Graduate business students selected the participants of the study on a convenience basis. The students primarily solicited responses from employers, employers of their parents, acquaintances or individuals with whom they had some other form of contact. The questionnaire was administered to a total of 767 owner-managers of small businesses and managers of large organizations. Participants in the study came from 20 states; however, most respondents lived in the Southeast United States.

Although the sample is convenience in nature, there are several benefits from this sampling technique. First, the sample was not anonymous and the data set was controlled. Respondents were asked to give their names, addresses and telephone numbers. Also, the respondents were asked for a statement of the philosophy of the organization and about the goals of the organization. Asking for this information dramatically reduced the likelihood that a participating student would personally complete the survey. Moreover, because the respondents were typically approached by people whom they knew, it is probable that the questionnaires were
more likely to be completed by the intended persons, an obvious advantage over a mail survey. Given these conditions, the researcher is confident of the integrity of the data. The questionnaires were examined upon submission, and most incomplete questionnaires were returned for completion.

Second, the rate of response was greater than that of the typical mail survey. It has been noted that surveys of entrepreneurs, in particular, produce notoriously low response rates (Gasse, 1982; Aldrich, 1992). Less than one in twenty individuals who were approached refused to participate in the study, indicating that individuals participated in the survey who might not otherwise have responded. Therefore, while still existent, nonresponse bias is not as problematic as with the typical mail survey. Also, because responses were checked for completeness as they were submitted, item nonresponse error was also dramatically minimized. Only 20 of the 767 completed surveys had missing data.

Third, the technique engendered the ability to generate a large sample size. The central limit theorem (Mason, 1982) suggests that the level of confidence of a sample of this size approaches that of a random sample. Also, the size of the sample improves statistical power. Using a conservative estimate of effect size, that labelled 'small' by Cohen (1988), the statistical power is between .96 and
.98 for an alpha level of .05, and between .88 and .92 for an alpha level of .01.

One particular disadvantage of the sampling technique should be noted. Jackson (1967) pointed out that the Personality Research Form could be given in a variety of situations, but the best results would be achieved by using standardized supervised group or individual testing conditions because the test was standardized under these conditions. Jackson felt that standardization under these conditions would yield the most reliable results, and cautioned that in other circumstances, it was important to impress upon subjects the seriousness of the purpose of the testing and to emphasize care in completing the test. While the basic purpose of the study was specified in a cover letter which accompanied the questionnaire, no other control over respondent conditions could be achieved.

Another issue is the appropriateness of the sample. VanderWerf and Brush (1989) surmised that sampling from different populations has hindered empirical research in entrepreneurship. This has been largely due to the aforementioned definitional dilemma in the field. VanderWerf and Brush advanced a set of criteria for sample specification including criteria for business unit variation and for individual variation. For business units, these criteria included the age, size and industry. For individuals, the criteria included roles in founding,
ownership and management of the business. While no a priori selection criteria were used for this sample because there were no lists or groups identified, data concerning these criteria, plus additional variables, were gathered. This information will allow for the investigation of potential moderator variables (Hunter, Schmidt & Jackson, 1983) and will provide the parameters for the dependent variables in the study.

Despite attentiveness to the sampling frame, it is possible that this sample of small business owner-managers and managers could be patently different from the target population of small business owner-managers. As suggested by Gartner et al. (1989), a comparison will be made between the subjects of this sample to other research samples that provide comparable sample size and statistics concerning the makeup of the sample. These comparisons should provide additional insight about the sampling frame.

One of the objectives is to maximize the external validity of the study. Neale and Liebert (1986) described two types of external validity, population and ecological validities. In terms of population validity, the intent is to generalize the findings to the population of small business owner-managers. The population validity is hampered in this study by the use of a convenience sample. Nevertheless, because of the size of the sample and the central limit theorem (Mason, 1982) the sample approaches
that of a random sample. With regard to ecological validity, because the sample is drawn primarily from the southeastern U.S., generalizing across geographic areas is limited. Yet, the comparison with other entrepreneur research populations, the size and demographic breadth of the sample, and the relative geographic dispersion of the sample should maximize the generalizability of the results within the constraints of the study (Neale & Liebert, 1986). It is frequently assumed that personality and entrepreneurial motivation and competence do not vary across cultures, but this assumption may not be valid (Nandy, 1973). De Vos (1968) and McGrath et al. (1992) cautioned that this assumption of cross-cultural consistency may be untenable. In light of this evidence, the results cannot be extrapolated to other cultures.

Instrumentation

Instrumentation, always an important element of a survey design, has been a crucial issue in the study of the psychological characteristics of the entrepreneur. Thus, careful attention must be devoted to the instrumentation for the study. One issue of concern in instruments for psychological measurement is response sets (Cronbach, 1946, 1950), which is a moniker for a host of biases such as acquiescence, evasiveness, tendency to guess and working for speed instead of accuracy. Cronbach (1946) provided a detailed examination of the potential deficiencies of a
survey design. The major criticism was the potential bias which the researcher introduces in the design of questionnaires. Cronbach believed that by defining the questions, response sets and the conditions for participation, the researcher may introduce systematic forms of bias into the study. Moreover, there may also be problems associated with the research participants.

Respondent error is also of concern, and includes a number of considerations. Sletto (1937) first identified the phenomenon of acquiescence response set in which the respondents tend to more frequently endorse favorable statements and not endorse negative statements. Also, there is a tendency on the part of respondents to endorse strong statements rather than weak statements (Webb, Campbell, Schwartz & Sechrest, 1971). The perception of the social desirability of the respondent vis-a-vis the question (Zikmund, 1994) may also be problematic. Additionally, one of the significant concerns in a survey is nonresponse error because those who respond to the survey may be statistically different from those who do not (Zikmund, 1994). In short, all of these potential threats to the usefulness of the research are potential limitations inherent in the research methodology which must be addressed.

Achievement Motivation

Hermans (1970) emphasized the need for objectivity in measuring need for achievement, stating that measurement had
been the most difficult problem in studies in the area of achievement motivation. One of the major issues has been the use of projective measures which treat achievement motivation as an unconscious variable, versus questionnaire measures which treat the construct as conscious. Sherwood (1966) found no significant differences between projective and self-report measures of achievement motivation as predictors of behavior; both are useful measures of the motives underlying behavior. There is no clear theoretical case for treating achievement motivation as an exclusively unconscious variable (Fineman, 1977). Holmes and Tyler (1968) indicated that achievement motivation is a conscious phenomenon, and therefore, amenable to direct self-report. Thus, a concerted effort was made to choose a measurement instrument for achievement motivation which would maximize reliability and validity. The Achievement Scale of the Personality Research Form (Jackson, 1967) was used to measure achievement motivation.

Jackson's (1967) Personality Research Form-F (PRF) is based on the 20 manifest needs described by Murray (1938). It is intended to yield scores for personality traits which are broadly relevant to the functioning of the individual in a wide array of situations. The PRF was chosen because of its use in previous research and the rigorous process by which the scales were developed and validated (Jackson, 1974). Wiggins (1973) stated that the PRF is the only
multitract personality inventory where the development was
guided explicitly by the substantive, structural and
external considerations of the construct viewpoint.

The PRF is composed of bipolar scales for each of the
twenty personality characteristics and two validation
scales, labeled desirability and infrequency. Because a low
score could indicate the absence of a trait or the presence
of the trait's opposite, some traits may be in theoretical
opposition. The PRF dimensions were conceived, both
theoretically and in measurement, as bipolar. The bipolar
construction reduces the likelihood of confusion and the
redundancy in the use of alternative concepts to define
essentially the same dimension (Jackson, 1967). Defining
both ends of a dimension with test items helps specify what
was being measured, and assists in controlling for response
biases such as acquiescence (Cronbach, 1946, 1950; Jackson &

Methods were used in the construction of the PRF to
reduce the role of response styles. Acquiescence was
suppressed by using equal numbers of true and false keyed
items. Moreover, the attention to content saturation in the
construction of the scales has been demonstrated to reduce
the role of acquiescence (Clunis & Jackson, 1966). High
differential content saturation and selection of items on
the basis of relatively low correlations with desirability
also reduce the potential for response bias. Each item was
analyzed for response consistency and was found to correlate more highly with its own total scale than with a desirability scale, indicating that each item is more saturated with content variance than with desirability variance (Jackson, 1967). This technique maximized reliability and discriminant measurement.

The PRF also includes an Infrequency Scale directed at identifying careless or non-purposeful responses (Sechrest & Jackson, 1963). High scores on Infrequency are unlikely for reasons other than non-purposeful responding. The Infrequency scale will be examined for all cases, and when the score exceeds 4, the case will be examined for errors in responding as suggested by Jackson (1967).

The definition of achievement motivation used for this study is as follows:

Achievement motivation, or the need for achievement, is evident in an individual who: aspires to accomplish difficult tasks; maintains high standards; works toward the attainment of distant goals; responds positively to competition; or is willing to put forth effort to attain excellence (Jackson, 1967).

Reliability and Validity of the PRF. Two properties of reliability, homogeneity and stability, should be examined in psychological testing (Jackson, 1967; Rosenthal & Rosnow, 1991). Jackson (1967) reported estimates of homogeneity which were derived from item analysis statistics. In a study of 142 students, the Kuder-Richardson formula 20 value for the achievement scale was .93. In a sample of New Jersey male high school students (N = 71), the Kuder-
Richardson formula 20 value for achievement was .73. A sample of 202 college students produced a Kuder-Richardson formula 20 value of .72. The author also reported odd-even reliability of .77 (N = 192). These values represent an acceptable level of internal consistency.

In terms of stability over time, Bentler (1964/1967) administered the PRF to male and female students in three California colleges on two occasions, separated by a one week interval. Bentler found a test-retest reliability score of .80 for achievement. Jackson (1967) postulated that this reliability could be considered a lower bound estimate because the testing conditions were not identical and the estimate of reliability, the intraclass correlation, is generally smaller in size than the simple intercorrelation. Jackson (1967) also evaluated parallel form reliability over two testing sessions separated by two weeks (N = 135). The test-retest reliability for achievement was .80. While these indicators of stability are good, one concern in these studies is the relatively short periods of time between tests because recall could have a significant influence on the retest score (Fineman, 1977).

Convergent and discriminant validation of the PRF Scales has been undertaken. Jackson (1967) reported a series of PRF validation studies which used trait attribution data to evaluate convergent validity. Judges
were presented with a list of traits exemplifying the variables in the PRF, and carefully phrased definitions for each of the personality traits. Each judge was asked to rate each person being judged on a nine point scale concerning the degree to which the trait was present or absent. The pooled ratings were used as a consensus of the degree to which a given trait was present. Subjects were also asked to indicate the presence or absence of each trait in themselves from a rating form containing 660 adjectives.

The first study used two samples of university students at two different California universities. For achievement, behavior ratings were .53 (N = 40) and .52 (N = 51). Self ratings were .55 and .42, respectively. A second study by Jackson and Guthrie (1968) of 202 students at a Pennsylvania university produced behavior ratings for achievement of .46 and self ratings of .65. All of the above validity coefficients were significant at the alpha .01 level. Jackson pointed out that these results: were based on cross-validational data, were complete, represented a predicted correlation and were free from any form of statistical adjustment.

Another validation study was undertaken by Kusyszyn (1968), who correlated PRF scale scores with judgments of the degree to which the subject possessed a particular trait. Here the subjects were 94 members of five fraternities. For the group which lived together, the
validity coefficient for achievement was .52 (.62 when corrected for attenuation) and .44 for the total sample (.50 when corrected for attenuation). All of these statistics were significant at an alpha level of .01. All of the above correlations exceed .40, which indicates acceptability, given that several of the most important effects in psychology are of a size between .30 and .40 (Funder & Ozer, 1983), and a prediction based on a correlation of .40 will be correct more than twice as often as it is wrong (Rosenthal & Rubin, 1982).

Funder and Dobroth (1987) addressed a pertinent issue in the aforementioned studies of validity, the degree to which judgments of traits might or might not be accurate. The authors identified three sources of differential accuracy: individual differences between judges, individual differences among persons being judged and the possibility that some traits can be judged more accurately than others. Funder and Dobroth's study indicated that a trait will most easily be visible when the trait is readily tied to confirming or disconfirming behaviors, the behavior is apparent in many occasions, only a few confirming behaviors are necessary to indicate the trait, and the trait seems subjectively easy to judge. Achievement motivation seems to fit readily with these criteria.

In studying the discriminant validity of the PRF, Jackson reported the use of multimethod factor analysis,
which orthogonalizes those portions of the multitrait-multimethod correlation matrix common to a given method of measurement (Jackson, 1966). The result of this technique is a correlation matrix where only heteromethod validity coefficients are obtained because the monomethod values have been replaced by zeros. Jackson maintained that by using this technique, method variance common only to a single method of measurement cannot intrude to determine common factors. When a rotation to simple structure is performed, the factors which result are interpretable as being due primarily to the correlation of traits across different methods of measurement, rather than as a result of artifacts of the method of measurement.

Jackson and Guthrie (1968) applied multimethod factor analysis to the evaluation of the convergent and discriminant validity of the PRF scales. Self and peer rating of traits of the characteristics were obtained for a sample of 202 subjects who had also taken the PRF. Using the varimax criterion, the PRF scales loaded on the appropriate factor. The self ratings, peer ratings, and PRF scores of achievement all loaded on one factor with factor loadings of .82, .61, and .83 respectively. The authors concluded that the results of the factor analysis provided substantial evidence for the convergent and discriminant validity of the PRF scales. Furthermore, it is possible to treat each PRF scale as distinct.
Convergent validity has been further demonstrated for the PRF. Edwards, Abbott and Klockars (1972) demonstrated that the Edwards Personal Preference Schedule was significantly correlated with the PRF on achievement motivation. Mehrabian (1969) found that the Mehrabian Achievement Scale (Mehrabian, 1968) significantly correlated with the PRF on achievement motivation. Numerous other studies have verified the reliability and validity of the PRF scales (e.g., Jackson & Guthrie, 1968; Vesper, 1980; Jackson, 1974; Campbell, Miller, Lubetsky & O'Connell, 1964; Jackson & Lay, 1967; Kusyszyn & Jackson, 1967).

One concern in the validation of the PRF has been the use of students. Face validity can be low for non-student populations (Fineman, 1975). Yet, demonstrations of cross-validity have not been made for the PRF, nor most other achievement motivation instruments. Nonetheless, the PRF has been ubiquitously identified as a sound personality assessment instrument (Anastasi, 1972; Kelly, 1978; Hogan, 1978). In fact, Wiggins (1973) referred to the PRF as the best example of a large scale personality inventory. It is believed that this achievement motivation instrument is the most well suited for this study.

Risk Taking Propensity and Preference for Innovation

Risk taking propensity and preference for innovation were measured using the Risk Taking Scale and Innovation Scale of the Jackson Personality Inventory (JPI) (Jackson,
1976). The JPI is a structured personality inventory which includes 16 personality variables, 15 of which are substantive, and the last addresses validity. The construction and features of the JPI parallel those of the PRF. The JPI consists of 320 true-false statements, each scale containing ten true-keyed and ten false-keyed statements. As with the PRF, Jackson (1976) advised that this design minimized the role of acquiescence response set, and permitted definition of each pole of bipolar scale dimensions with positively-worded content.

The JPI was developed for use on populations of average or above average ability. Jackson (1976) proposed that the JPI is most appropriate for studies of personality in a variety of settings, particularly those which investigate the personality correlates with particular occupations, and is appropriate for business and industry. Given these suggested applications, the instrument is appropriate for the purpose of this study. Moreover, Dyer (1985) stated that the development of the JPI was rigorous and painstaking and the results have been generally praised.

The Risk Taking Scale of the JPI allows examination of four relatively independent components of risk taking: social, physical, monetary and ethical. While assessing all four elements of risk taking, the scale tends to weight monetary risk taking more heavily than the other three types (Jackson, 1976). In terms of theoretical approach, the Risk
Taking Scale is comparable to Palmer's (1971) definition of risk taking, which involves the willingness to commit to a decision which could lead to success or failure and accompanying rewards and penalties. The following is a description of the high scorer on the Risk Scale (Jackson, 1976):

- Enjoys gambling and taking a chance; willingly exposes self to situations with uncertain outcomes; enjoys adventures having an element of peril; takes chances; unconcerned with danger.

The Innovation Scale of the JPI is a measure of the predisposition to be innovative. In this sense, innovation on the JPI is conceptually synonymous with creativity. The Innovation Scale is highly similar to several personality-type indicators of creative personality style (Goldsmith, 1987). The following is a definition of the high scorer on the Innovation Scale (Jackson, 1976):

- A creative and inventive individual, capable of originality of thought; motivated to develop novel solutions to problems; values new ideas; likes to improvise.

Reliability and Validity of the JPI. Research has verified the reliability and validity of the JPI for measuring generalized risk taking. For risk taking propensity, Jackson (1977) tested the internal consistency reliability with two samples of male and female college students in California and Pennsylvania (N=82 and N=307, respectively). For several reasons, reliability was estimated using Bentler's coefficient theta. Because risk
taking was composed of four facets, physical, monetary, social and ethical risk taking, Jackson argued that coefficient theta was more appropriate because, unlike coefficient alpha, coefficient theta is not restricted to an assumption of a single unidimensional attribute. In cases of departure from unidimensionality, alpha will yield an underestimate of the lower-bound reliability (Bentler, 1972). Nonetheless, Jackson did calculate alpha coefficients for the purposes of comparison.

For the Risk Taking Scale, Bentler's coefficient theta was .93 for the California sample and .91 for the Pennsylvania sample. Coefficient alpha was .81 for the California sample and .84 for the Pennsylvania sample. The internal consistency reliability of the Innovation Scale produced values of .94 and .93, respectively, using Bentler's coefficient theta, and .83 and .87, respectively, using coefficient alpha. Jackson argued that these scores were relatively high and that they attest to the value of content saturation in the construction of the test.

Other studies have supported the reliability of the two scales. Goldsmith (1987) reported alpha values of .85 for innovation and .81 for risk taking in a sample of 96 undergraduate business students. Begley and Boyd (1987b) reported an alpha value for risk taking of .784. Howell and Higgins (1990) discovered an alpha of .84 for both risk taking and innovation.
Testing for validity (N = 70), Jackson (1976) reported multitrait-multimethod matrix correlations with the completion of an adjective checklist, with self ratings and with peer ratings. For the Risk Taking Scale, the convergent validities were .74, .73 and .52, respectively. For the Innovation Scale, the convergent validities were .79, .72 and .37, respectively. All of the validity coefficients were significant at an alpha level of .01. Jackson also used a revised multimethod factor analysis technique. The results indicated that the predicted measures were highly loaded on their respective factors, supporting convergent and discriminant validity at the factorial level.

A second study reported by Jackson (1976) involved correlations between JPI scale scores, self ratings and roommate ratings for 116 college females. The correlations with self ratings and peer ratings were .65 and .43, respectively, for risk taking and .75 and .23, respectively, for innovation. Jackson attributed a portion of the relatively lower peer correlations to the reduced reliability of a single judge. Nonetheless, all of the aforementioned correlations were significant at an alpha level of .01. Notably, neither scale was significantly correlated with measures of acquiescence or desirability.

Jackson provided additional evidence of validity by presenting correlations between the JPI and a number of
other instruments, including the Bentler Psychological Inventory, the Bentler Interactive Psychological Inventory, the Personality Research Form and the Minnesota Multiphasic Personality Inventory. The correlations provided additional evidence of discriminant and convergent validity. Additional support has been shown for the reliability and validity of the JPI (Jackson, Hourany & Vidmar, 1972; Sexton & Bowman, 1984b).

Demographics

Demographic data concerning both the individual and the firm were gathered. These variables included the education, age, race and gender of the respondents. Owners were asked how they acquired the business, the age of the venture and the type of organization it represented. Strategic questions addressed owner goals and perceptions of the business, the relationship of the business to their families and the practice of strategic planning.

Jackson (1971) stated that "to construct psychological measures in disregard for sources of method variance is to court disaster" (p. 240). This principle is evident in Jackson's construction of the PRF and JPI. In both instruments, the careful attention to scale construction is justified by the weight of contemporary writing (Dyer, 1985). Despite the attention to scale construction in the PRF and JPI, self-report data can be problematic.
Verification of the data concerning demographics, goal and purpose is arduous because of the size of the sample and a lack of knowledge of other organizational members. Neither are the self-report measures of the psychological variables verifiable by independent means. The potential problem of common method variance arises when interpreting correlations among these self-report measures (Campbell & Fiske, 1959), particularly single source bias where the measures are generated from a single source (Podsakoff & Organ, 1986; Spector, 1987; Avolio, Yammarino & Bass, 1991). Both the PRF and JPI were constructed to minimize response sets (Jackson, 1967, 1976). Also, the information used to categorize the dependent variable came from simple statements asked of the respondents. Nonetheless, the issue of method variance cannot be ignored, and will be addressed in the study.

The Variables

The dependent variable is categorical, with respondents classified as being either managers or small business owner-managers. The distinction between the small and large businesses was made based upon the most widely used definition of a small business (Peterson, Albaum & Kozmetsky, 1986), that provided by the Small Business Administration. Based upon the number of employees and the amount of sales, all small firms in the sample complied with the Small Business Administration's guidelines, i.e., a
small business is independently owned and operated, and not
dominant in its field. All of the firms in the sample which
are classified as small would qualify for assistance under
the Small Business Administration's guidelines. The
remaining firms, all of which were publicly held, were
classified as large businesses. This classification system
led to the identification of 425 small business owner-
managers and 342 managers from the sample.

For the purpose of further partitioning the sample of
small business owner-managers in this study, the definitions
of entrepreneur and small business owner are those posited
by Carland et al. (1984). An entrepreneur establishes and
manages a business for the principal purposes of profit and
growth, is innovative and employs strategic management in
the operation of the business. Alternatively, a small
business owner establishes and/or manages a business for the
primary purpose of attaining personal goals. The business
is an extension of the owner's personality, and is
inextricably bound with family needs and desires.

The categorization of the owner-managers as
entrepreneurs or small business owners was accomplished by a
panel of experts composed of Drs. Jo Ann and James Carland,
the originators of the definitions. The researchers
independently categorized the individuals and then compared
the results of the classifications. There were no
disagreements on the classification of the individuals as
entrepreneurs or small business owners by the judges, producing an interjudge reliability of 100 percent. The utilization of these definitions in this study resulted in the classification of 101 entrepreneurs and 324 small business owners. Three respondents did not provide enough information for a distinction to be made and were excluded from the analysis.

A total of eight independent variables are employed in the study. These variables include individual and firm demographic characteristics, risk propensity, achievement motivation and preference for innovation. These variables are thought to fully specify the model.

Data Analysis

The first step of the analysis is to factor analyze the dependent variable in order to assess the criteria from the definitions of Carland et al. (1984) used to categorize the responses. The analysis is guided by theory in factor structures of the data (Kerlinger, 1986). This confirmatory factor analysis enables a partial assessment of the internal consistency of the Carland et al. definition. Thus, an evaluation of the proposal that the goals and planning behaviors of entrepreneurs and small business owners may differentiate between the two groups of small business owner-managers will be undertaken.

The second stage of the analysis entails a hierarchical set multinomial LOGIT regression procedure which is used to
evaluate the research model and to test the hypotheses. LOGIT analysis generates a linear model for a categorical response (Demaris, 1992). The advantages of this form of analysis are numerous for this study. There is no requirement that the predictor variables have the multivariate normal distribution (Press & Wilson, 1978). The hierarchical method has the ability to partial variance with correlated independent variables and is useful for extracting maximal causal inference from the data (Cohen & Cohen, 1983). The focus upon sets also helps control the investigationwise, or omnibus, risk of committing a Type 1 error because protected t-tests are performed on each set (Cohen & Cohen, 1983).

The analysis was constructed so that the managers were the reference group. The individual demographic variables were entered into the analysis in the first set. The type of organization, the second set of variables, was entered next. Entering these variables in the first two steps partials out their effects from the variables of primary interest in the study (Cohen & Cohen, 1983).

There is no sound causal theory to guide the entry of the primary independent variable. For this reason, six models, which represent all possible orders of entry, were analyzed. Each step represents an analysis of covariance of the previously entered set, and the focus is upon the set which has been entered into the model (Cohen and Cohen,
1983). As suggested by Cohen and Cohen (1983) and Jaccard, Turrisi and Wan (1990), the hypothesized interactions will be tested by using the multiplicative form and by entering the interaction term into the hierarchy subsequent to the entry of the main effect variables. Again, the interactions were entered in both possible sequences.

Chapter Summary

This chapter is an outline of the research methodology for the study. A survey research design is utilized for the study. The survey instrument contains the Achievement Motivation Scale of the PRF and the Risk Taking and Innovation Scales of the JPI. The reliability and stability of both instruments have been thoroughly established, and the instruments have been repeatedly designated as psychometrically sound (Anastasi, 1972, 1976; Hogan, 1978). A large, broad sample of small business owner-managers and managers of large companies was attained by the distribution of the questionnaire by graduate business students. Hierarchical set multinomial LOGIT is the principal data analytic technique.

Throughout the chapter, careful attention has been devoted to issues which can be problematic in correlational research (Mitchell, 1985). The model has been adequately specified through attention to potential confounds, thereby enhancing internal validity. The reliability and validity of the measures, the statistical power analysis, the
attention to potential method variance and the appropriate application of the analytic technique enhance the construct validity and statistical conclusion validity of the study. External validity is strengthened by using a large, representative sample of individuals from a 20 state region.
CHAPTER IV

ANALYSIS OF RESULTS

The analysis of the data of this study is composed of several procedures. First, an analysis of the sample is presented, including comparisons to the samples of other major studies of entrepreneurs. Next, the results of the confirmatory factor analysis of the criteria which define the categorization of the dependent variable are presented. Finally, the development of the model, the analysis of the predictive efficacy of the model and the testing of the proposed hypotheses are presented. A complete discussion of the results is provided in the subsequent chapter.

Analysis of the Sample

One consideration with the data is that the sample might be different from the general population of managers and small business owner-managers, an ubiquitous concern in entrepreneurship research. Given this possibility, it is important to assess the representativeness of the sample. For this purpose, the sample is compared to other research samples where comparable information was available. Particular emphasis is placed on the sample characteristics of the study by Cooper and Dunkelberg (1987), who believed
that their sample (N=1805) was the largest and most varied to date.

The sample characteristics for both the individuals and their companies are displayed in Table 7. Individual characteristics are given for respondent age, gender, education and race. Predictably, the sample includes more males than females, and more whites than non-whites, both common phenomena in samples of small business owner-managers. The distribution of gender was comparable across all the levels of the dependent variable, but only two non-white entrepreneurs were identified. The age and education of the individuals were also comparable to similar studies. The vast majority of the individuals in the sample were between the ages of 26 and 55, and most were also well educated. The demographics of the respondents for this sample are comparable to the sample of Cooper and Dunkelberg (1987).

The company characteristics consist of the type of firm, number of employees and sales volume. Most of the organizations in the sample are retail or service organizations. This is particularly true of the firms associated with entrepreneurs and small business owners. Most of the managers were associated with manufacturing organizations. The statistics for the number of employees and volume of sales are consistent with the categorization of the individuals as entrepreneurs, small business owners
<table>
<thead>
<tr>
<th>Individual Characteristics</th>
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<tr>
<td><strong>Gender:</strong></td>
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<td>Female</td>
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<tr>
<td>Male</td>
<td>561</td>
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<tr>
<td><strong>Race:</strong></td>
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<tr>
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<tr>
<td>Black</td>
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</tr>
<tr>
<td>Other</td>
<td>18</td>
</tr>
<tr>
<td><strong>Age:</strong></td>
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<tr>
<td>25 or younger</td>
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<tr>
<td>26 to 35</td>
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<td>36 to 45</td>
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<tr>
<td><strong>Education:</strong></td>
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<td>Less than high school</td>
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</tr>
<tr>
<td>High school graduate</td>
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</tr>
<tr>
<td>Some college</td>
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</tr>
<tr>
<td>College graduate</td>
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<td>Construction</td>
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<td>Service</td>
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<tr>
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<td>199</td>
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<tr>
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</tr>
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<td>$501,000 to $1,000,000</td>
<td>59</td>
</tr>
<tr>
<td>Over $1,000,000</td>
<td>302</td>
</tr>
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</table>
or corporate managers. Again, all of these firm characteristics were approximately comparable with the sample of Cooper and Dunkelberg (1987).

In general, the comparisons between the characteristics of this sample and the characteristics of the samples in other studies indicate similar sampling frames. Moreover, the individuals in this study appear to be representative of individuals in the population. Nevertheless, given incomplete information from other samples, inadequate information about the population and convenience sampling, it can not be determined with absolute confidence that the sample is wholly representative of individuals and firms in the general population.

Descriptive Statistics, Intercorrelations and Reliabilities

Means, standard deviations (s.d.) and intercorrelations of the variables in the study are presented in Table 8. Of particular importance here are the three primary independent variables, risk taking, achievement motivation and innovativeness. There is more dispersion in the scores for risk taking than there are for either of the two other independent variables. Also, these three variables are all significantly positively correlated, with the highest intercorrelation between risk taking and innovativeness ($r = .43$).

Reliability for the instruments pertaining to risk taking propensity, preference for innovation and need for
Table 8
Descriptive Statistics and Correlation Matrix

<table>
<thead>
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<th>Variables</th>
<th>Mean</th>
<th>s.d.</th>
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<th>5</th>
<th>6</th>
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<td>.09</td>
<td>.02</td>
<td>.25</td>
<td>.43</td>
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*Correlations greater than .07 or less than -.07 are significant at alpha = .05*
achievement were analyzed in the current study using Cronbach's Alpha. The alphas were .76, .77 and .72, respectively, and are of a magnitude which should produce valid results (Bruning & Kintz, 1987). These scores, combined with previous investigation, suggest that the instrument accurately measures the characteristics, and that the individual items on the test produce comparable patterns of responses over all cases.

Confirmatory Factor Analysis

The first step of the analysis was to factor analyze the criteria used to categorize the dependent variable, particularly with regard to different types of small business owner-managers. This confirmatory factor analysis is an assessment of the definitions of entrepreneurs and small business owners which were proffered by Carland et al. (1984). The distinction between the two groups is based upon differences in the goals and planning behaviors of entrepreneurs and small business owners. Questions pertaining to the existence and degree of formalization of planning and to the focus of the goals for the organization were asked of all respondents. The respondents were asked if they engaged in planning, and if so, whether their plans were written or unwritten. The respondents were also asked if the primary purpose of the organization was profit and growth, or to produce family income. These questions were then factor analyzed utilizing Systat. Because of the
categorical nature of the variables, a phi correlation method was used. Furthermore, no communalities were used in defining the factor analysis.

The first issue was to determine the number of extracted factors. When factor analyzed, the planning and goal criteria produced three unrotated factors. Three factors were considered optional for two reasons. First, there were three factors with eigenvalues which were greater than one. Second, beyond three factors the sums of squares of the loadings on the extracted factors no longer declined, but remained at a low and approximately uniform level thereby reaching a point were factor extraction is reasonably terminated (Comrey & Lee, 1992).

The second decision concerned factor rotation. When two or more factors are extracted, rotations helps produce and identify meaningful and useful factor constructs, as well as producing comparable results from different methods of factor extraction (Comrey & Lee, 1992). The factor loadings were rotated using the Varimax rotation procedure. Varimax was chosen because it enhances interpretability by maximizing the variance of the squared factor loadings by column and is more invariant from one sample to another because it gives equal weight to all variables in determining the rotations (Kaiser, 1958, 1959). The results of the factor analysis are displayed in Table 9.

The three rotated factors account for a combined 81.662
Table 9

Confirmatory Factor Analysis
of Dependent Variable Categorization

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<th>Criteria</th>
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<tr>
<td>Family Income</td>
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</tr>
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<td>1.139</td>
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<td>27.369</td>
<td>25.811</td>
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<td>81.662</td>
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<tr>
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a where Factor 1 is small business owners
Factor 2 is entrepreneurs
Factor 3 is managers
percent of the total explained variance. Moreover, the communalities \( h^2 \) show considerable overlap with the factors in what they measure. The proportion of variance in the variables which is accounted for by scores in the factors is particularly high for unwritten plans \( h^2 = .9702 \), a goal of profit and growth \( h^2 = .8562 \) and a goal of producing family income \( h^2 = .8022 \). Also of interest are the factor scores. Although there is no known statistical test that can be used to establish the significance level of a rotated factor loading, a commonly accepted cutoff level is a factor score with an absolute value which is greater than .30 (Comrey & Lee, 1992) which is considered a rigorous level (Child, 1970). The values which exceed this criterion are underlined in Table 8 and are the basis for the following identification of the factors.

No plan \( (.800) \) and family income \( (.867) \) load on the first factor. Theory suggests that this factor be labelled small business owners because it corresponds with minimal strategic planning and a goal orientation focused on family income. The second factor is characterized by high loadings of unwritten plans \( (.980) \) and profit and growth \( (.562) \), however, profit and growth also loads on the third factor. This makes distinctions between factors two and three less definitive. Written plans \( (.855) \) loads on factor three. Research indicates that planning in small businesses tends
to be less frequent and formalized than planning in large businesses (Shuman & Seegar, 1986). For this reason, factor two is labelled entrepreneurs, corresponding with a greater emphasis on strategic planning, although informal, and a goal orientation focused on profit and growth. The third and final factor, labelled managers, is characterized by a high degree of formalized strategic planning and a profit and growth orientation.

The results of the confirmatory factor analysis indicate that the three identified dimensions correspond with proposed theory and the categorization criteria which were used to define the dependent variable. Furthermore, while these results do not provide conclusive support for the Carland et al (1984) definitions, the factor analysis does provide partial validation of those definitions because it evinces internal consistency. The goals and planning behaviors of entrepreneurs and small business owners appeared to allow differentiation between the two groups in this data set. Yet, some caveats are prudent here.

Although the size of this sample \((N = 767)\) increased the reliability of the correlation coefficients (Guertin & Bailey, 1970), caution is in order when factor analyzing dichotomous variables because they are less reliable and subject to distortion (Comrey & Lee, 1992). Also, only a small number of variables were included in the analysis. More dependable factor results are produced with the
inclusion of more variables (Comrey & Lee, 1992). Also, the correctness of an interpretation which is based on factor analytic results should be confirmed by evidence outside the factor analysis itself (Comrey & Lee, 1992). For these reasons, the results of this analysis must be considered tentative.

Model Determination and Predictive Efficacy

The primary analysis in this research entails modelling the research framework and performing a series of hierarchical set multinomial LOGIT regressions. The first step was to determine the appropriate entry of variables into the model for analysis. The intention was to hold constant the effects of the demographic characteristics of the individuals and the type of industry of the organization so that these variables would not confound the analysis of the primary variables of interest in the study. For this reason, the individual demographic variables, age, education, race and gender, were entered as a set into the model in step 1 of the analysis. Subsequently, in step 2, the variables comprising the type of organization, wholesale, retail, manufacturing, service and construction, were entered into the model as a set.

The next phase was to enter the primary independent variables. Given that there are three variables of interest and no conclusive theory to guide the order of entry, six models were created which encompassed every possible order
of entry. In these models, each of the main variables was entered singularly so that each comprised a set. Finally, both of the interaction terms were entered, again in both possible orders.

All of the models were significant (alpha = .05) overall, as were the steps which included the covariates and the main independent variables. For the purposes of discussion, the model which has the most conceptual appeal is presented. Based upon the literature, the sequence of achievement motivation, preference for innovation and risk taking is a theoretically appealing order of variable entry into the model. McClelland (1961) believed that achievement motivation was established very early in life and its presence led to a preference for tasks requiring originality. The originality may beget additional risk.

The significance of the overall model and the individual steps are shown in Table 10. The McFadden's Rho-squared, a global test of the significance of the predictor set, is the first statistic of interest in the table. It is a statistic which is roughly comparable to the coefficient of determination in ordinary least squares regression, however, McFadden's Rho-squared tends to be much lower. Values of McFadden's Rho-squared between .20 and .40 are generally considered very satisfactory (Hensher & Johnson, 1981). At each step, McFadden's Rho-squared is significant
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<tr>
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<th>Log Likelihood</th>
<th>Rho^2</th>
<th>P-Value</th>
<th>G-Statistic</th>
<th>P-Value</th>
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<td>.000*</td>
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<td>.000*</td>
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<td>.000*</td>
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<td>.286</td>
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* the log likelihood of the constants only model is -757.334
* significant at alpha=.05
and of primary importance is the score for the fully partialled model, .245, indicating a satisfactory model. Given that the model is significant, it can be concluded that at least one of the predictors has a significant impact on at least one of the LOGITs (Demaris, 1992).

The next area of concern is the significance of the sets of variables. The steps were tested for predictive impact using the G-Statistic which is twice the difference in the log likelihoods of the new and previous steps (Hosmer & Lemeshow, 1989). The G-statistic has a Chi-square distribution with the degrees of freedom equal to the number of parameters in the new step. Using this statistic, steps 1 through 5 are significant. Steps 6 and 7, which are composed of the interaction terms, are not significant. These tests of the steps now provide the latitude to test the individual predictors within the significant steps.

Analysis of Predictors

In addition to the analysis of the predictive efficacy of the model, it is important to analyze and present the predictive capabilities of each individual independent variable. The fact that the overall model is significant allows the testing of individual variables within the sets that are significant. In a hierarchical set regression analysis, it is appropriate to test the estimates for significance as they come into the model if the overall set is significant (Cohen & Cohen, 1983). This technique allows
for the testing of the proposed hypotheses. The estimates attained for the variables as the set enters the analysis represent the total effects of the variables and the fully partialled model indicates the direct effects of the variables (Cohen and Cohen, 1983).

The analysis was constructed so that the reference group is the corporate managers. Two separate LOGIT regressions were estimated at each step of the analysis. The first LOGIT compares the entrepreneurs to the managers. The second LOGIT compares the small business owners to the managers. A comparison of the two LOGITs to each other, thereby comparing entrepreneurs and small business owners, is provided later in the analysis.

The results of the hierarchical set multinomial LOGIT regression are displayed in Table 11. In addition to the estimates (B) for each variable, the standard error (SE), t-statistic (t), p-value (p) and the change in estimate (change in B) is provided for each step. In each step, the LOGIT for the entrepreneur (Entrep) is provided first, followed by the LOGIT for the small business owners (SBO). It should also be noted that the p-values for the variables achievement motivation, risk taking and innovation have been cut in half to conduct the one-tailed tests suggested by the directional hypotheses incorporating those variables. Additionally, the p-values are presented to three decimal points as provided by Systat. P-values marked by * are
Table 11
Results of Hierarchical Set Multinomial LOGIT Regression

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Table 11 (Continued)

Results of Hierarchical Set Multinomial LOGIT Regression

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Table 11 (Continued)
Results of Hierarchical Set Multinomial LOGIT Regression

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Results of Hierarchical Set Multinomial LOGIT Regression

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<th>t</th>
<th>p</th>
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Table 11 (Continued)
Results of Hierarchical Set Multinomial LOGIT Regression

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<th>Step</th>
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<th>SE</th>
<th>t</th>
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<th>change in B</th>
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<td>.00</td>
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<td>.085**</td>
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significant at an alpha value of .05, while p-values marked by ** are significant at an alpha value of .10.

Tests of Individual Demographics and Type of Organization

The first area of interest in assessing the significance of the predictors is the covariates which represent the control variables. The only variable which is significant in the set of individual demographic predictors for entrepreneurs is education. Entrepreneurs exhibit a significantly lower (t = -2.69, p = .007) education level when compared to managers. Alternatively, small business owners had scores significantly different from managers in two of the variables. Small business owners were also significantly less educated than managers (t = -4.09, p < .0001), as well as older than managers (t = 5.17, p < .0001). No significant differences in race or gender were found for either group relative to managers.

Two of the organization type variables were significant in the second step. Both entrepreneurs (t = 3.223, p = .001) and small business owners (t = 3.20, p = .001) are significantly more likely to be involved in retail organizations than are managers. Conversely, managers are significantly more likely than both entrepreneurs (t = -3.02, p = .002) and small business owners (t = -6.41, p < .0001) to be associated with organizations involved in manufacturing.
Also of interest are the changes in the estimates for age and education when the type of organization was entered into the analysis. The values of the estimates for age in the entrepreneur group and the estimates for both age and education in the small business owner group increased in step 2. This indicates suppression with these variables and the set of variables representing the type of organization.

**Hypothesis Tests**

The primary focus of the research was to test the proposed hypotheses concerning the differences in the three groups with respect to the psychological constructs of interest. A summary of the results of the tests of the hypotheses is provided in Table 12. Following is a discussion of the tests for each of the hypotheses.

**Differences Between Entrepreneurs and Managers.**

Hypotheses 1a, 2a and 3a posited that entrepreneurs would exhibit higher scores on achievement motivation, risk taking and preference for innovation, respectively, than would corporate managers. Achievement motivation was strongly significant ($t = 4.26, p < .0001$) in discriminating between the two groups. Entrepreneurs also exhibited a significantly higher level of preference for innovation ($t = 3.54, p < .0001$), as well as a significantly higher propensity for risk taking ($t = 4.86, p < .0001$) as compared to managers. These results support hypotheses 1a, 2a and 3a.
Table 12
Summary of Tests of the Hypotheses

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1a: Entrepreneurs will demonstrate a greater need for achievement than will corporate managers.</td>
<td>S</td>
</tr>
<tr>
<td>H1b: Small business owners will demonstrate a greater need for achievement than will corporate managers.</td>
<td>NS</td>
</tr>
<tr>
<td>H1c: Entrepreneurs will demonstrate a greater need for achievement than will small business owners.</td>
<td>S</td>
</tr>
<tr>
<td>H2a: Entrepreneurs will exhibit a higher risk taking propensity than will corporate managers.</td>
<td>S</td>
</tr>
<tr>
<td>H2b: Small business owners will exhibit a higher risk taking propensity than will corporate managers.</td>
<td>S</td>
</tr>
<tr>
<td>H2c: Entrepreneurs will exhibit a higher risk taking propensity than will small business owners.</td>
<td>S</td>
</tr>
<tr>
<td>H3a: Entrepreneurs will display a higher preference for innovation than will corporate managers.</td>
<td>S</td>
</tr>
<tr>
<td>H3b: Small business owners will display a higher preference for innovation than will corporate managers.</td>
<td>NS</td>
</tr>
<tr>
<td>H3c: Entrepreneurs will display a higher preference for innovation than will small business owners.</td>
<td>S</td>
</tr>
</tbody>
</table>

S = Supported
NS = Not Supported
The parameter estimates also changed as variables were added to the analysis. For instance, when preference for innovation was added to the model, the estimate for achievement motivation fell, but remained significant. Also, when risk taking was added to the model, the estimates for both preference for innovation and achievement motivation dropped again, but also remained significant. These declines in the estimates of the previously entered variables suggests redundancy among the variables. This is not unexpected given the high intercorrelations among these three variables.

When the interaction term for achievement motivation and risk taking was added to the model, the estimates for both risk taking and achievement motivation increased, and they remained significant. The estimate for preference for innovation did not change; however, the P-Value for innovation was pushed upward. Moreover, when the preference for innovation and risk taking interaction was added to the analysis, a marked change occurred in the innovation variable. The main effect for preference for innovation, as previously shown, was significant. Yet, upon the entry of the interaction term, preference for innovation became nonsignificant ($t = .77$, $p = .22$). This suggests that some of the importance that was originally attached to the main effect of preference for innovation is actually attributable
to the interaction between preference for innovation and risk taking.

**Differences Between Small Business Owners and Managers.**

Hypotheses 1b, 2b and 3b posited that small business owners would exhibit higher scores on achievement motivation, risk taking and preference for innovation, respectively, than would corporate managers. The results support only one of these hypotheses. No significant differences between small business owners and managers were found for achievement motivation ($t = .20, p = .422$), nor for preference for innovation ($t = .97, p = .165$). Yet, the results supported the hypothesis that small business owners tend to exhibit higher risk taking than do managers ($t = 3.78, p < .0001$).

Some interesting changes occurred in the estimates of the variables as new variables were entered into the analysis. For example, the estimated coefficient for achievement increased when preference for innovation was added to the model, indicating suppression. When risk taking was added, the estimated coefficients for both achievement motivation and preference for innovation fell. This suggests redundancy vis-a-vis these two variables and risk taking.

The addition of the two interaction terms also produced interesting results in this LOGIT. Although neither the step nor the interaction term for risk taking and achievement motivation is significant, when it was added to
the analysis, the main effect for risk taking became nonsignificant ($t = .84, p = .202$). This phenomenon suggests that some of the variance which was attributed to risk taking in the previous step is actually attributable to the interaction of risk taking with achievement motivation. This may indicate a lesser importance for risk taking in small business owners due to the effect of the interaction.

The interaction term for risk taking and preference for innovation was significant at alpha = .10 ($t = .01, p = .085$), but the step was not significant, disallowing any interpretation of the interaction term. Yet, when this interaction was included in the final step, the estimate for the main effect of preference for innovation increased and became significant ($t = -1.72, p = .043$). This would suggest that the pure effect of preference for innovation is negative for small business owners. Also, the introduction of this interaction changed the signs of the estimates for both preference for innovation and risk taking, indicating a confounding effect.

**Differences Between Entrepreneurs and Small Business Owners.** Hypotheses 3a, 3b and 3c predicted that entrepreneurs would exhibit higher scores on achievement motivation, risk taking and preference for innovation, respectively, than would small business owners. The testing of this stream of hypotheses requires a comparison of the
two groups through a series of Wald tests. The results of the Wald tests are provided in Table 13.

Age is the only significant difference in entrepreneurs and small business owners ($\chi^2 = 5.75, p = .016$) in terms of the set of individual demographic variables. This test indicates that the entrepreneurs were, on average, younger than the small business owners. No significant differences were found with regard to gender, education nor race among the two groups. Neither were any significant differences indicated between the two groups with regard to the type of organization.

The entrepreneurs and small business managers did differ on the main independent variables. Entrepreneurs displayed significantly higher scores on achievement motivation than did the small business owners ($\chi^2 = 10.75, p < .0001$). This finding supports hypotheses 1c. Also, entrepreneurs evinced significantly higher scores on risk taking than did the small business owners ($\chi^2 = 5.42, p = .020$). Additionally, entrepreneurs were also higher on preference for innovation than were the small business owners ($\chi^2 = 9.56, p = .002$). These findings provide support for hypotheses 3a, 3b and 3c.

Wald tests are also included for the two interaction terms, although neither of the steps (6 and 7) for the interaction terms were significant. The results also show that neither of the interaction terms is significant in
Table 13
Results of Wald Tests Across Entrepreneurs
and Small Business Owners

<table>
<thead>
<tr>
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<th>p</th>
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</tr>
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<td>.020*</td>
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<td>risk*achievement</td>
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<tr>
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*a one degree of freedom for each test
* significant at alpha=.05
predicting a difference between entrepreneurs and small business owners.

**Elasticities.** Elasticities are another tool for assessing the predictive efficacy of the variables in the model. Elasticities indicate the percentage change in the probability of being classified in a given group given a percentage change in the value of a given predictor. The individual variable elasticities are shown in Table 14. The elasticities for each variable are taken from the step where the variable was introduced to the model, thereby producing an elasticity coefficient for the total effect of the variable.

According to the elasticities, the best predictor of being classified as an entrepreneur is achievement motivation. A given percentage change in the value of achievement motivation produces the largest percentage change in the probability of being classified as an entrepreneur. The elasticities for the preference for innovation and risk taking variables also indicate good classification power.

**Chapter Summary**

The results of the analysis of the data for this study were presented in this chapter. The analysis of the data was multifaceted. An analysis of the characteristics of the sample indicated that the sample is comparable to other research samples, and is likely indicative of the
Table 14
Individual Variable Elasticities for Significant Variables
Averaged Over All Observations*

<table>
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</table>

* Indicates the percentage change in the probability of being classified in the given group for every percentage change in the value of the given independent variable.
population. Also, a confirmatory factor analysis of the criteria used to categorize the dependent variable was conducted. The results of this factor analysis can be considered as a partial validation of the theory predicting differences among small business-owner managers, and provides an impetus for partitioning them into two groups, entrepreneurs and small business owners.

The crux of the analysis involved determining and evaluating a hierarchical set multinomial LOGIT regression model, and testing the hypotheses. A model with significant predictive efficacy was produced. Support was found for including age, education and type of business as covariates.

The testing of the hypotheses suggested that entrepreneurs are significantly higher in their achievement motivation, preference for innovation and risk taking compared to both small business owners and corporate managers. Support was also evident for small business owners having a higher risk taking propensity than corporate managers. Interaction terms for achievement motivation and risk taking, and preference for innovation and risk taking were not statistically significant. The best model, therefore, would exclude these interaction terms. Yet, while the tests of the interactions did not indicate moderation, the evidence did suggest that the interaction terms were confounders.
CHAPTER V

EVALUATION OF RESULTS

The final chapter is devoted to a discussion of the results of the study. Elements of this discussion include an explanation of the results and the implications of the findings. Furthermore, both the methodological and practical limitations of the research are delineated and analyzed. Finally, both methodological directions and topic areas for future research are suggested.

Discussion of Results

While many of the expectations conveyed in the hypotheses were supported, the results did not support all of the hypotheses. In terms of the entrepreneurs, the findings were consistent with the majority of the literature. It is with the small business owners, who were expected to be more like the entrepreneurs than like the managers, where inconsistencies are apparent. The following discussion of the results is organized around the variables of interest in the study.

The individual and firm demographics were primarily included in the study to control for extraneous sources of variance. Nonetheless, these variables provided some interesting insights into individuals in the three
categories. The entrepreneurs tended to be younger than the small business owners in this study. Entrepreneurs have typically been found to be younger when compared to other groups. Nevertheless, the fact that entrepreneurs are younger than the small business owners is somewhat surprising, given the discussion of the experience factor in entrepreneurship. Much attention has been focused on the backgrounds of small business owner-managers, and experience is typically one of the factors associated with entrepreneurial success. It appears questionable how significant the experience factor is in new venture creation and/or growth if the entrepreneur is relatively youthful to the point of diminished meaningful business experience.

It is interesting to speculate how the age difference might affect the planning and goals in the organizations which are owned by these two types of individuals. It is possible that the relative youth of the entrepreneurs is a factor in determining their goals of profit and growth for their organizations. The older, maybe more entrenched, small business owners could be in a stage in their lives which engenders a focus on more constrained goals such as family income. Stability appears to be more important to the small business owners and this possibility is also reflected in their risk profiles. The higher propensity for risk taking in the entrepreneurs may also be a partial
determinant of a focus on profit and growth, rather than the relatively more conservative goal of family income.

Both the entrepreneurs and the small business owners are less educated than the managers. This result is relatively predictable. In most organizations, an education is a prerequisite to assuming managerial positions. Alternatively, a lack of education may be a barrier to becoming a business owner only if it affects the ability to acquire the necessary capital to enter the business. Moreover, for managers, the additional time spent on education might influence an individual's desire for stability rather than the risks associated with new venture creation. In fact, education could conceivably influence a manager's perceptions of risk and risk taking propensity, making the relatively more predictable managerial position more psychologically comfortable.

The results concerning the types of business in which the individuals were involved are also straightforward. The entrepreneurs and small business owners were mostly associated with firms engaged in retail businesses. The managers were more likely to be associated with manufacturing organizations. The capital requirements demanded by participation in manufacturing organizations may largely preclude their establishment by owner-managers. Retail organizations are potentially less restrictive for the owner-managers to enter. Education may also influence
the type of organization because owning and operating a manufacturing firm would probably demand more education, particularly in technical areas.

The nucleus of the study was the investigation of the psychological constructs. Many of the assertions made in the literature were confirmed in this study. It appears that the psychological constructs in this study are elements of the entrepreneurial vision of the small business owner-manager. A key element of entrepreneurship is opportunity. These psychological constructs appear to be important to the process of seeking and exploiting entrepreneurial opportunities. Moreover, the results point to marked differences in the psychological profiles of the small business owner-managers.

As hypothesized, the entrepreneurs were higher in achievement motivation, risk taking propensity and preference for innovation than were the managers. This is consistent with the classical profile of the entrepreneur. The archetypal portrait of the entrepreneur is an individual who is highly driven to succeed. This motivation is also connected with a particular risk taking posture. The entrepreneur assumes the risk of the initiation and operation of the organization. Concomitantly, the entrepreneur sparks innovation by mutating the economic characteristics of products, markets or industries. Decades of research and theorizing about the entrepreneur indicate
the confluence of these factors in distinguishing entrepreneurs from their corporate counterparts. The results of this study reinforce this conceptualization of the entrepreneur as an achieving, creative risk taker.

Notably, this profile of those generally labeled as entrepreneurs is not consistent across both of the types of small business owner-managers in this study. Small business owners present a different portrait. The only characteristic which differentiated the small business owners from the managers was the small business owners' relatively higher proclivity toward taking risks. This outcome suggests that, more than any other factor, it is risk taking that distinguishes the small business owner-manager from the corporate manager. There is a measure of riskiness inherent in business ownership which is not necessarily present in the managerial role. This propensity to take more risks appears to delineate between the choice of business ownership and the choice to assume a managerial position.

The differences exhibited between the small business owners and the entrepreneurs provide the most interesting outcome of the research. Not only did the entrepreneurs differ dramatically from managers, but they also differed from small business owners. Small business owners are less risk oriented and are not as highly motivated to achieve as are entrepreneurs. Small business owners also lack the same
degree of innovativeness as entrepreneurs. Given the relative significance of innovativeness in entrepreneurs, it would appear that creativity necessitates extended risk because it entails coping with the potential outcomes which are associated with untried venues. Small business owners appear to lack this coalition of creativity and risk taking.

These findings logically coincide with the differences in the goals of small business owners and entrepreneurs. Psychological antecedents appear to influence entrepreneurial aspirations. Small business owner-managers have goals which are related to their personalities. Entrepreneurs exhibit the psychological profile that is consistent with their goals of growth and profit, and the use of systematic planning. It is intuitively appealing that high achievement motivation, high risk taking and a proclivity to innovate are coupled with an emphasis on profit and growth. Alternatively, the psychological predispositions and actions of small business owners are more attuned to their personal goals and family income. The small business owner appears to be a conceptual link between the entrepreneur and the manager, exhibiting characteristics that are likened more to the manager than to the entrepreneur. These findings have a plethora of implications.
Theoretical Contributions and Implications

If confirmed by future research, these findings have important implications. From a theoretical perspective, if indeed the individual entrepreneur is the most salient unit of analysis in entrepreneurship research and theory (Lachman, 1980; Mitton, 1989; Herron & Sapienza, 1992), then a more complete understanding of the entrepreneur is a necessary antecedent to the development of a more complete understanding of the process of entrepreneurship. These results reinforce the assumption that human volition is essential to a model of entrepreneurship (Bygrave & Hofer, 1991). The results of this study suggest that a personal predisposition toward entrepreneurship may be the foundation for a more rigorous, robust model of the entrepreneurial process.

This research lies at the crux of two major theoretical debates. For decades, disagreement has existed in the field of psychology concerning the determinants of behavior. This debate has been the genesis of a parallel flurry of contention in the field of entrepreneurship concerning whether to study the entrepreneur or the behaviors of the entrepreneur. The results of this study suggest that studying traits and behaviors may not be mutually exclusive. This study incorporates elements of both perspectives. While the focus was on identifying the significance of personality constructs, the inclusion of goals and planning
practices in the study links psychological antecedents with individual behavior. The results provide numerous insights into the nature of different types of small business owner-managers relative to corporate managers.

Individuals who evidence the significant characteristics and behaviors will not necessarily found new ventures. It is likely that there are triggering events which cause an entrepreneurial predisposition to be realized into action. Yet, a more complete understanding of the entrepreneur, coupled with a broader theoretical framework, provides the basis for understanding which triggering events are significant and how they bear upon the individual.

Numerous types of entrepreneurs have been identified by researchers, but the literature is mixed concerning the validity and usefulness of distinguishing between different types of small business owner-managers. The results of this study suggest that taxonomies of entrepreneurial types could be useful in more fully understanding the entrepreneur. Furthermore, this analysis lends credence to those who argue that the distinctions which have been made between entrepreneurs and small business owners are more than a question of semantics. This study suggests that a profit and growth orientation, and the utilization of strategic management practices do differentiate entrepreneurs from small business owners. Risk propensity, achievement motivation and preference for innovation, variables
ubiquitous in their connections with the entrepreneur, are also useful in making this distinction.

The results of this study also reinforce the differentiation that is made between entrepreneurship and small business management (Luchsinger & Bagby, 1987). Luchsinger and Bagby discussed the potential for firms headed by entrepreneurs to be larger and associated with higher profit potential and higher risk than the conventional small business. Given the entrepreneurs' psychological predisposition, goals and planning practices, their association with larger, growth oriented firms is not a surprising outcome. The confluence of factors associated with small business owners would tend to link them with organizations which are more static. The more these two groups of owner-managers are understood, the more likely it will be to meaningfully circumscribe the areas of entrepreneurship and small business management.

Potentially the most important implication from this study is for research methodology in entrepreneurship. To be complete, research definitions of entrepreneurs must extend beyond new venture creation. It is important to fully circumscribe the sampling frame. Incomparable sampling frames may be the reason for the morass of inconsistencies in this line of research. One sample of small business owner-managers may be markedly different than another sample. This makes comparability of research
problematic and hinders theoretical development in the field. Hence, by launching into a study of small business owner-managers, it behooves the conscientious researcher to fully describe the sampling frame. Only in this way may a clear, acceptable definition of the entrepreneur actually be developed. A distinct operational definition of the entrepreneur would serve to enhance theoretical rigor by improving methodological precision, particularly in defining the characteristics of appropriate sampling frames.

The results of this study indicate the value of studying the entrepreneur. A myriad of characteristics have been associated with the entrepreneur. Additional characteristics may be important in predicting or indicating entrepreneurial endeavors. If the characteristics can be successfully linked with entrepreneurial behaviors, the potential for learning how to enhance the practice of entrepreneurship and its success would be greatly improved.

In summary, this study may be the first step in the reconciliation of the inconsistent findings of past research, and may thus lead to progression in the field of study. Moreover, an individual's psychological characteristics will affect behaviors in the business, and presumably, the outcomes of the business. Additionally, the predictors of entrepreneurship identified here can be used to enhance both theory and practice through additional
research. These findings suggest a multitude of additional directions for supplementary research.

Limitations of the Research

As with all research, there are potential limitations associated with this study. It is important to acknowledge the limitations of the research. These limitations are of two genres: limitations imposed by the research problem and limitations associated with the research methodology. Of these two types, the limitations of primary concern are those which are methodological in character, particularly those inherent in a survey design and the concomitant reliance on self-report data. This concern is due to the fact that methodological limitations might restrict the usefulness of the research.

Methodological Limitations

The analysis of the methodological limitations is primarily guided by the work of Cook and Campbell (1979) and the applications to correlational research provided by Mitchell (1985). The methodological issues are presented according to the major categories of research validity. Specifically, these areas include construct validity, statistical conclusion validity, internal validity and external validity. Notably, these validity issues are interrelated. Issues in the research which overlap one or
more of these areas of validity will be analyzed primarily under the area where the issue is most applicable.

**Statistical Conclusion Validity.** There are potential issues associated with the findings given the specified alpha level and the obtained variances. Of paramount importance is the lack of control over the administration of the questionnaire and the conditions during response. The lack of standardization in implementing the questionnaire is a problem, as are sources of possible error variance due to factors associated with the settings of the respondents. Both factors could contribute to increased error variance. While the potential for these effects is recognized, they are not believed to be significant for this study due to the relatively high reliability, both internal consistency and stability, of the measures and the acceptable reliability estimates in this study.

Other factors associated with statistical conclusion validity do not appear problematic. The size of the sample afforded high statistical power in the testing of the hypotheses. Nonetheless, significant differences between small business owners and managers were not obtained for risk taking propensity and preference for innovation. A post hoc power analysis indicated that the failure to find significance in these hypotheses was not a function of the sample size for an effect size of .10. Therefore, the validity of these findings appears satisfactory.
The logistic regression model is robust with regard to the violation of most assumptions. The utilization of sets and protected t-tests reduced the error rate problem and the potentially biasing effects of multicolinearity in the independent variables. Finally, appropriate model specification resulted in model parsimony and a reduction in the potential bias of the estimates.

There are limitations associated with the confirmatory factor analysis. While the theoretical guidelines for the analysis were supported, statistical hypothesis testing was not possible. This limits the definitiveness of the factor analysis. Although, it should be recognized that substantive interpretation of the factors is not necessarily dependent upon statistical significance because a statistically significant factor may not always be identified correctly in terms of the empirical phenomena (Anderson, Basilevsky & Hum, 1983). Nonetheless, the factor results should be subsequently verified by second-order factor analysis (Kerlinger, 1986) and more sophisticated confirmatory factor techniques which use covariance structure analysis (Comrey & Lee, 1992).

**Internal Validity.** There is a possibility that there is an alternative explanation of the identified relationships between the variables in this study. As with any cross-sectional, correlational design, there was a lack of control over the independent variables. It is possible
that spurious relational patterns have been identified and that the direction of potential causal influence was misconstrued, presenting a host of speculative rival plausible hypotheses.

One area of obvious concern is selection. The researcher had no control over who completed the survey. It is conceivable that those respondents who participated in the study were patently different from those who did not participate. Most of the respondents had some personal association with the individual who sought their participation in the study. This may have introduced bias into the study through the convenience method of sampling. Alternatively, the method of data collection produced a high response rate. Because nonresponse was low for a survey design, it minimizes the potential distortions introduced by the special characteristics of the respondents. Although nonresponse was minimized in this study, it is still an area of concern. It is feasible that selection may have adversely influenced the internal validity of the study. Nonetheless, potentially of more concern are alternative hypotheses resulting from possible confounds.

A large number of uncontrolled variables are inherent in the phenomenon itself, as well as the research circumstances. The potential interaction of these variables is unpredictable. Despite this situation, the lack of control over the potential confounds may not be problematic
in this study for a couple of reasons. The first reason is the model specification for the study. Individual demographic factors which might have affected the hypothesized relationships were included in the design of the study and controlled. The second explanation is the diversity and size of the sample.

The sample includes individuals from a large variety of situations, thereby including individuals with different amounts and combinations of the uncontrolled variables. By mixing them all, chance imbalances may have been cancelled (Isaac & Michael, 1990), thereby exerting some level of control over extraneous variables. The size of the sample, approaching that of a random sample, is likely to have positively influenced the internal validity of the study, as well as enhancing the external validity of the findings. Nonetheless, the lack of control over the variables remains a potential limitation and poses the most significant threat to internal validity.

**Construct Validity.** Another issue is the degree to which the operationalized variables in this study measure the constructs of interest. Response sets, hypothesis guessing and common method variance represent the most important potential threats to construct validity in this study. Notably, the instruments used in this research were carefully constructed to maximize content saturation and to avoid problems associated with response sets. Also, the
instruments have repeatedly been demonstrated to have divergent and convergent validity. Additionally, the privacy of the response situation would tend to minimize the likelihood of evaluation apprehension (Dillman, 1983). For these reasons, it is not believed that instrumentation poses a vital question of validity in this study.

Hypothesis guessing on the part of the respondents could also present a construct validity problem. While hypothesis guessing is possible, it is not probable given the nature of the study. Moreover, the instrumentation is such that hypothesis guessing would not likely result in serious concerns about validity. Potentially of more significance is common method variance.

Only one method of measuring each of the variables of interest was used, precluding triangulation on the referent. Moreover, the data for the independent and dependent variables were collected from the same respondents, sparking concerns about single source bias. Under these circumstances, any defect in the source contaminates all measures (Podsakoff & Organ, 1986). Contributing factors include a consistency motif in responses, questionnaire items similar in content, social desirability, respondent mood and stimulus setting effects (Podsakoff & Organ, 1986).

While potentially existent, common method variance is not believed to be a significant threat in this study for several reasons. First, the construction of the instruments
included careful attention to consistency motif, item content and social desirability. The strong validity of the instruments lessens concerns about mono-method bias. In terms of single source bias, the data for the dependent variable were based upon a series of direct questions concerning the goals and practices of the individual. The dependent and independent variables were not measured on scales with similar formats. These data were then used to identify the small business owner-managers as either entrepreneurs or small business owners. Additionally, the results of the confirmatory factor analysis do not indicate a problem with single source bias (Williams, Cote & Buckley, 1989). Because of the differences in the measurement of the independent and dependent variables, and the aforementioned attentiveness to the design of the measurement of the independent variables, it is unlikely that artifactual covariance is problematic. Nonetheless, the data is not independently verifiable, there were no controls for stimulus effects upon response and there were no means by which to assess respondent mood. Hence, while common method variance is not believed to be problematic, its existence cannot be ruled out with certainty.

External Validity. Most of the issues pertaining to external validity are a function of the sample for the study. While sampling for heterogeneity was not deliberate, it was an outcome of the sampling procedure. There are a
host of divergent situations and subjects included in the sample. Moreover, the sample appears to be representative of the specified target population. These factors, coupled with the size and relative dispersion of the sample, indicate favorable conditions for the generalization of the results. Nonetheless, there are potential external validity limitations.

One consideration is that little is known about the characteristics of the population of small business owner-managers. While the sample for this study compares favorably to other samples of entrepreneurs, all of the samples could be mistargeted. A notable potential example in this sample is the small number of non-white respondents. This might be due to convenience sampling. Also, because of the fact that the sample was obtained in a particular geographic region, primarily the Southeast, the results may have limited generalizability. Clearly, cultural differences would preclude the extrapolation of these results to other cultures. Moreover, it should be recognized that to the extent that the internal validity of the results are hampered, so is external validity. Ultimately, the generalizability of the findings can only be assessed through systematic testing with different subjects, settings and responses (Flanagan & Dipboye, 1980).

In summary, a number of trade-offs were made in the design of the study, a dilemma associated with any research
effort. Where possible, attempts were made to address the potential concerns associated with statistical conclusion, internal, construct and external validity. Despite these efforts, it should be noted that the aforementioned limitations represent potential threats to the usefulness of this research.

Theoretical Limitations

There are also theoretical limitations which circumscribe the research due to the research problem and to the nature of this study. First, it should be noted that this is not a study of prospective entrepreneurs. The fact that the small business owner-managers in this study had realized the entrepreneurial event may have implications. For instance, Cromie and Johns (1983) suggested that aspiring entrepreneurs may exhibit a different profile than would entrepreneurs who were established in their businesses. The authors found that aspiring entrepreneurs possessed a distinctive personal profile, but after some years of managing the business, the entrepreneurial qualities diminish as the established entrepreneurs become more like career managers. While the results of this study do not support this conclusion, it is possible that the entrepreneurial event affects the psychological condition of the entrepreneur.

Not only may the actual entrepreneurial event be of significance, but so may be the time elapsed since the
event. In other words, it is also feasible that the psychological constructs, achievement motivation, innovativeness and attitudes toward risk, change over time. For instance, achievement motivation may have a temporal, contextual quality. Theoretically, an individual's success may erode the need for achievement (McClelland, 1961; McClelland & Winter, 1969). Also, from an evolutionary perspective, different characteristics may be emphasized at different stages of the organizational life cycle. Nandy (1973) found that need for achievement was the most important individual factor for entry and survival in the business, while education is more influential in developing business competence. Nandy proposed that after entering and attaining some level of stability in an entrepreneurial role, the entrepreneur becomes less dependent upon personality motives, and more dependent upon personality resources for better entrepreneurial functioning.

Comparable issues may be associated with risk taking and preference for innovation. For example, Brockhaus (1982) hypothesized that established entrepreneurs might be characterized by a different risk profile, suggesting that the process of entrepreneurship might increase the desire for moderate levels of risk. Similarly, Timmons, Smollen and Dingee (1985) argued that risk taking decreases as net worth accumulates.
No effort was made to differentiate between successful and unsuccessful small business owner-managers, nor investigate the potential relationships between the psychological constructs and entrepreneurial success. Yet, there is an element of success inherent in the individuals in the study. At the time of the sampling, all of the respondents were members of organizations. The small business owner-managers had started or assumed ownership of a business, some of the businesses had been highly successful and some individuals had been in business for several years. Many of the managers had ascended to positions of influence in their organizations. Nonetheless, because the research problem did not incorporate success, it is beyond the scope of the study to suggest that the presence or absence of the identified personality variables ensures success in either group.

The study deals with psychological factors which indicate intentions to engage in a particular type of business role. It should be noted that intentions do not automatically transfer into a specified behavior. All individuals who exhibit the psychological profile of the entrepreneur will not necessarily behave entrepreneurially. It is likely that triggering environmental events also affect the realization of entrepreneurial proclivities.
Directions for Future Research

The results of this study suggest a host of additional directions for research. The proffered suggestions for additional research are composed of two basic types. First, the methodological factors which are inferred from this research that bear on future research are presented. Second, specific research topics which are suggested by the results of this study are detailed.

Directions for Research Methodology

The lack of significant theoretical development in the field of entrepreneurship may be partially attributable to a limited theoretical approach. Researchers who focus singularly on the person or the situation may lose portions of important elements of the phenomenon of entrepreneurship. Sufficient empirical evidence concerning both the traits of the entrepreneur and the situation of the entrepreneur exists. Efforts aimed at combining the two may hold promise. This entails including a broader theoretical approach, i.e., interactionism. The personality x situation model of behavior has been suggested as the next logical step in theory and research (Magnusson and Endler 1976). For entrepreneurship, this entails a systematic, comprehensive set of analyses of situations which influence the entrepreneurial process. Then, situation and personality variables could be incorporated into research designs. An area of future research would be to identify
the interplay between the variables presented here and contextual events which might initiate entrepreneurial actions. Such studies could then be used to construct a contingency framework for entrepreneurial activities. A framework of this type would allow the development of more complete, refined paradigms for entrepreneurship.

Another line of research with methodological, as well as theoretical implications, is establishing causal inference in this research stream. Establishing causality entails elaboration on research designs. The classic method of investigating causal relations is, of course, experimentation. Experimentation in all areas of inquiry in entrepreneurship has been inadequate. Other methods of drawing causal inferences, although less conclusive, are also warranted. These methods include longitudinal designs and path analytic techniques.

Longitudinal research designs have been infrequently used in entrepreneurship research. If indeed the entrepreneurial event unfolds over a significant period of time, cross-sectional research designs may be inadequate in fully understanding the nature of the process. This suggests an additional research effort based upon these findings. What happens to the psychological antecedents of entrepreneurship over time? Sexton and Bowman (1983) proposed that the question of whether the entrepreneur possessed characteristics at the initiation of the
entrepreneurial activity and if so, how the magnitude of characteristics changed temporally was important and inadequately addressed in the literature. Longitudinal analyses would help establish the temporal sequence of covariation.

Finally, this study concentrated primarily on the total effects of the individual variables. One important extension is to study the interrelatedness of the variables which were included in this study. A more complete causal model in the form of a path analysis would provide more insight into both the direct and indirect effects of the variables.

**Topic Areas for Additional Research**

The results of this study suggest a host of topic areas for additional research. These areas include: associations between personality and performance, the organizational life cycle, intrapreneurship, educational and assistance programs for the entrepreneur, venture team composition, modes of business entry and planning in small organizations.

**Personality and Performance.** An important topic in this line of research is the effects of psychological characteristics on performance. Performance could be considered as the establishment and ownership of an organization, as well as the performance of the organization. The research which has focused on this line of research has been largely inconclusive (Perry, 1990).
This should not discourage inquiry in this area. If psychological factors are associated with performance, understanding and predicting the relationships is essential. Research which produces ameliorative solutions to performance problems is potentially the most useful type of organization research.

The Entrepreneur and Organizational Life Cycle. Much attention has been devoted to managerial issues associated with the progression of an organization through the organizational life cycle. This evolution has important implications for our understanding of entrepreneurs and managers. One of the earliest and most well known works in organizational life cycles is the work of Greiner (1972). In his theory of organizational evolution, Greiner suggested that the founding entrepreneur should be replaced by a capable business manager if the organization is to grow and prosper. Similar propositions have been advanced by Tuason (1973) and by Clifford (1973). Smith and Miner (1983) noted a similar central theme in the theories of organizational progression.

Organizations may indeed require different managerial styles as they grow, and the entrepreneur must undergo a style change or be replaced by a manager more capable of dealing with a given organizational stage. For instance, Novellie and Tullar (1988) contended that characteristics of the entrepreneurial personality made it difficult to
delegate tasks to subordinates. Therefore, a more complete understanding of psychological correlates of organization behavior and the differences between managers and entrepreneurs could be used to investigate the interface between the entrepreneurial business and its growth into a large organization. More fully understanding psychological antecedents may be the most appropriate beginning in this area of research.

Intrapreneurship. Interest in corporate entrepreneurship has escalated, and scholarly research has been devoted to entrepreneurship in the established organization (e.g., Burgelman 1983, 1984; Nielsen, Peters & Hisrich, 1985; Hisrich & Peters, 1986; MacMillan & Day, 1987), as well as popular books (e.g., Pinchot, 1985; Brandt, 1986; Hisrich, 1986; Kanter, 1983, 1989). Alternatively, some researchers consider entrepreneurship to be the opposite of corporate management (Vesper, 1985). The idea of entrepreneurship in the context of a large corporation seems oxymoronic to some entrepreneurship researchers (Stevenson & Jarillo, 1990). Yet, entrepreneurial features such as innovation, opportunity recognition, growth and flexibility are also desirable in the area of corporate entrepreneurship as organizations strive to be successful in complex, dynamic environments.

An understanding of entrepreneurial traits could be cogent to the development of effective selection and
training of intrapreneurs, and is necessary for the creation of organizational climates which are conducive to internal entrepreneurship (Sexton & Bowman, 1983). For example, McClelland (1961) argued that those with high need for achievement are not necessarily the best managers, a conclusion also implied by Hines (1973). Ross and Unwalla (1986) portrayed innovation as an element of the intrapreneurial personality. There is also evidence that when people are given the latitude to seek creativity in doing things their own way at work, they are better adjusted in their environments and they have lower work stress levels (Nicholson & West, 1988).

It is important to learn more about how intrapreneurs and entrepreneurs are psychologically similar or diverse and how the environments in which they operate influence the outcomes of psychological factors. Furthermore, research which links the fields of entrepreneurship and corporate management is important to the continued development of both fields (Stevenson & Jarillo, 1990). For example, Luchsinger and Bagby (1987) advised that an enhanced understanding of entrepreneurship and intrapreneurship could be used to improve productivity. Clearly, more research is necessary to determine how intrapreneurial behaviors may be fostered in large organizations.

Assistance and Education Programs. More knowledge about the psychological nature of entrepreneurs could
provide useful information to capital institutions such as banks, to franchising organizations, to government programs (both domestically in terms of small business assistance and internationally in terms of assistance programs in economic development) and to educational programs targeted at providing entrepreneurial education (Hornaday & Bunker, 1970). Research has suggested that training might be used to increase the supply of entrepreneurs (Leibenstein & Ronen, 1987). For instance, McClelland and Winter (1969) have demonstrated that achievement motivation training can produce increases in business activity, and a host of studies have demonstrated that achievement motivation can be enhanced through training (Kolb, 1965; Timmons, 1968; McClelland & Winter, 1969; Arnoff & Litwin, 1971; Jackson & Shea, 1972). Miron and McClelland (1979), reviewing the literature and reporting the results of their studies, concluded that achievement motivation training significantly improves small business performance if there is support from the economic infrastructure in terms of available loans, market opportunities and a labor force. Moreover, the results indicated that such programs are successful for disadvantaged minorities, and were useful in other countries which provide less economic support. Similarly, Colton and Udell (1976) reported that efforts at the National Science Foundation's Innovation Centers had produced higher levels of innovation and entrepreneurship among participating
students and, thereby, shortened the entrepreneurship
gestation period.

Increasing numbers of students are studying
entrepreneurship, and if entrepreneurs exhibit clusters of
psychological characteristics, it is also possible that they
will have different learning styles (Ulrich & Cole, 1987).
Research on these learning styles and their psychological
correlates could provide a basis for improving pedagogy in
teaching entrepreneur skills. Therefore, indicants of
entrepreneurial potential could signal opportunities for
educational intervention which fosters entrepreneurship.

McGrath, MacMillan and Yang (1992) noted the
considerable expenditure of resources to promote
entrepreneurial activities, but the transfer of such
programs to different cultures has frequently produced
discouraging results. Potentially this is because the U.S.
culture, with its emphasis on individualism and personal
achievement, is not accepted in other cultures (Peterson,
1988). Investigating psychological predispositions toward
entrepreneurship, to the extent that they are culture-based,
could produce fruitful results in the adaptation of
successful economic development programs which are intended
to foster entrepreneurship. A cogent example is the
entrepreneurship development program in India which has been
described by Gupta (1989). Selection criteria for the
program include individual need for achievement, capacity
for risk taking, positive self-concept, problem-solving abilities and drive for autonomy. The program targets the needs of each group and minimizes the costs of industrial promotion strategies. Learning more about the characteristics of entrepreneurs could improve the results of these programs.

Venture Teams. Evidence suggests that new venture teams can make a substantial difference in venture success (Cooper & Bruno, 1977; Timmons, 1984, 1990; Obermayer, 1980; Kamm, Shuman, Seeger & Nurick, 1990). Roure and Maidique (1986) confirmed that experienced, well formulated and balanced venture teams contribute to organizational performance. Knowledge of the psychological predisposition of aspiring entrepreneurs could also be salient in establishing entrepreneurial teams, as well as being an effective tool in evaluating established entrepreneurial teams. For instance, a common source of conflict among venture team members is ambiguous or inconsistent motives associated with the new venture (Morris, 1989; Norman & Zawacki, 1991; Greenberg & Weinstein, 1992). Achievement motivation could be a salient issue in these circumstances. Also, differences in risk taking and innovativeness may also produce conflict in venture teams. More research is necessary to identify the psychological associations with conflict and the means of resolving those conflicts.
Psychological factors might also influence venture team performance.

Modes of Business Entry. There are several means by which an individual might become the owner-manager of a venture. These vehicles to ownership include founding the business, buying the business, franchising or inheriting the business. Research suggests that there may be individual differences which affect these different avenues to ownership. Begley and Boyd (1986, 1987) discovered that founders score significantly higher than nonfounders in achievement motivation and risk taking propensity. Comparable evidence has also been shown by Hull et al. (1980), who found that owners who had taken part in creating the business had a higher risk taking propensity than those who were owners, but had not taken part in the creation of the business. The need for achievement was not a distinguishing factor between the two groups. More research is necessary to determine how psychological factors are associated with modes of ownership. Understanding more about differences in individuals who pursue business ownership through different modes may produce results that are useful in fostering entrepreneurship.

Planning in Small Businesses. Robinson and Pearce (1984) noted that planning in small businesses was not well understood. The planning process in small firms, its antecedents and outcomes remains imperfectly understood.
Yet, formal planning improves performance in small firms (Schwenk & Shrader, 1993). Planning in small firms is dominated by the owner-manager, and evidence suggests that the characteristics of the owner-manager influence planning. Carland, Carland and Aby (1989) found that owners of small businesses who had formal plans had higher achievement motivation, higher risk taking propensity and higher preference for innovation than did those who planned informally or did not plan at all. This suggests that psychological factors influence the existence and nature of planning in small firms. Moreover, evidence suggests that the entrepreneur's personality affects information sources (Welsch & Young, 1982) which might influence the content of strategic decisions.

The study of strategic management processes in small organizations is indispensable. Those labelled entrepreneurs in this study engaged more extensively in strategic planning than did the small business owners. It is important to learn more about how psychological factors influence the process and outcomes of strategic thinking in small organizations. If entrepreneurs are more strategic in their planning, much is to be learned from the process of planning in these organizations, and the commensurate effects on performance. Investigations of this type could produce fruitful research in both entrepreneurship and
strategic management, and be invaluable to the foundation of our economic system, the entrepreneur.

Chapter Summary

The purpose of this study was to determine if the achievement motivation, risk taking propensity and preference for innovation differed between small business owner-managers and corporate managers. The observed differences were discussed in the chapter. Moreover, the implications of the research, both methodological and theoretical, were detailed.

There are limitations associated with this research. Both theoretical and methodological limitations were discussed. Of the two types of limitations, the methodological limitations are of primary concern. The discussion of these limitations entailed scrutiny of the statistical conclusion, construct, internal and external validities of the study. It is believed that the potential areas of concern do not pose significant threats to the usefulness of the research.

Finally, directions for additional research were proposed. The extended areas for subsequent inquiry are aimed at identifying and refining components of the entrepreneurial personality, and determining how the factors influence entrepreneurial behaviors and outcomes. Inculcating entrepreneurial behaviors in all organizations
may be the key to responding to the competitive challenges with which modern organizations must contend.
APPENDIX

QUESTIONNAIRE
Major Elements of the Questionnaire

The following questions were asked of all respondents:

Company name and address ________________________________

Type of company: [ ] retail, [ ] wholesale, [ ] manufacturing, [ ] construction or [ ] service

Sales range: [ ] less than $100,000, [ ] $100,000-$500,000, [ ] $501,000-$1,000,000 or [ ] over $1,000,000

Number of employees: [ ] under 10, [ ] 10-50, [ ] 51-100, [ ] 101-250 or [ ] over 250

Respondent's sex, age and race

How many years of formal education have you had?

Date business was established

How many levels of management are there in this business?

The following questions were asked of all small business owner-managers:

Were you a principal in the establishment of this business? [ ] yes or [ ] no. If no, [ ] did you buy it or [ ] inherit it?

Is this the first business which you have started? [ ] yes or [ ] no. If no, how many other businesses have you owned?

What were your principal purposes for establishing this business? [ ] Profit and growth, or [ ] provide family income

Do you have a written plan for the development and growth of the business? [ ] yes or [ ] no. If no, do you have a formal unwritten plan for development and growth? [ ] yes or [ ] no

All respondents were also asked to complete the Achievement Scale of the PRF and the Risk Taking and Innovation Scales of the JPI.
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