Entrepreneurial orientation and psychological traits: the moderating influence of supportive environment

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ABSTRACT

Positive environmental influences are important factors in the success of an entrepreneurial venture. Environmental factor such as supportive environment may have a moderating influence on the relationship between psychological traits and entrepreneurial orientation. A cross-sectional study was conducted among entrepreneurs in a capitol city situated in a Southern Metropolitan Statistical Area (SMSA).

Results of the study support significant positive relationships between psychological traits and entrepreneurial orientation. Findings also suggest that supportive environment moderate the relationships of psychological traits and entrepreneurial orientation. Overall, research findings have a number of theoretical and managerial implications. For example, venture capitalists, management practitioners, and other business professionals who are involved in high risk ventures may employ this entrepreneurial orientation model as a useful tool to assess entrepreneurial capabilities, managerial tendencies that may improve return on investment relative to human capital. Also, it may be a useful tool for selecting team members for new business start ups, and evaluating applicants for intrapreneurship positions in the corporate world. Another implication is in the area of entrepreneurship pedagogy, linking the relationship between psychological traits and entrepreneurial orientation could be used as a technique for identifying students for entrepreneurial careers. In addition, this study was conducted with actual entrepreneurs in the service sector. Prior studies have drawn their samples from mostly students, managers and non-entrepreneurs; and the service sector has received very little attention in previous entrepreneurship research, yet it represents one of the fastest growing sectors in the global economy.

Entrepreneurial Orientation: Achievement, Locus, Supportive Environment

INTRODUCTION

The study of entrepreneurship is a multidimensional process that calls for further and continuing research studies. Prior research studies have been filled with inconsistency and controversy relative to the appropriate definition of an entrepreneur and the relevance of personality traits study in entrepreneurship (Beugelsdijk 2007; Jaafar & Abdul-Aziz 2005; Aldrich and Martinez 2001; Gartner 2001; Lee and Peterson 2000; Lyon, Lumpkin & Dess 2000; Shane & Venkataraman 2000; Aldrich and Kenworthy 1999; Busenitz & Barney 1997; Lumpkin & Dess 1996; Gartner 1988, Carland et al. 1984; Cole 1969; Knight 1921).
The personality traits approach to entrepreneurship has been criticized by a number of researchers as unsatisfactory and questionable (Gartner, 1988; Aldrich & Zimmer, 1986, Low & Macmillan, 1988) in explaining entrepreneurial behavior and performance. They concluded that there are no personality characteristics that predict who will attempt to, or be, a successful entrepreneur. As Low and MacMillan (1988, p. 148) stressed, entrepreneurs tend to defy aggregation. They reside in the tails of the population distribution; and though they are expected to differ from the mean of the society, the nature of their differences is not predictable. As a result, it seems that any attempt to profile entrepreneurs solely along the personality characteristics may be overly simplistic. In light of the aforementioned criticism including the suggestion made by Gartner (1988, p. 57) and Vesper (1980) that entrepreneurship should be analyzed from the perspective of what an entrepreneur does and not what he is, and that creation of an organization is a complex process and the outcome of many influences. Thus, this research revisits the question of whether psychological traits –need for achievement, locus of control, and tolerance for ambiguity -- are useful predictors by investigating their relationship to entrepreneurial orientation whether supportive environments moderate the relationships between entrepreneurial orientation and psychological traits.

LITERATURE REVIEW

Carland et al. (1984), in an attempt to provide answers to the questions that: 1) if entrepreneurs exist as entities distinct from small and large organizations and 2) if entrepreneurial activity is a fundamental contributor to economic development, on what basis may entrepreneurs be separated from non-entrepreneurial managers in order for the phenomenon of entrepreneurship to be studied and understood? After reviewing literature of small business and entrepreneurship and using Schumpeter's work (1934), they defined an entrepreneur "as an individual who establishes and manages a business for the principal purposes of profit and growth. The entrepreneur is characterized principally by innovative behavior and will employ strategic management practices in the business" (p. 158). This theoretical piece distinguished the entrepreneur from a small business owner. Carland et al. also defined a small business owner as "an individual who establishes and manages a business for the principal purpose of furthering personal goals. The business must be the primary source of income and will consume the majority of one's time and resources. The owner perceives the business as an extension of his or her personality, intricately bound with family needs and desires". This definition recognized the overlap between small business owner and entrepreneur but provided additional support to Schumpeter's characterization of entrepreneurship as innovation oriented.

Lumpkin and Dess (1996) further clarified the definitional issue in entrepreneurship in their 1996 seminal work by making a distinction between entrepreneurship and entrepreneurial orientation. They suggested that an entrepreneurial orientation (EO) represents entrepreneurial processes that address the question of how new ventures are undertaken, whereas the term entrepreneurship refers to the content of entrepreneurial decisions by addressing what is undertaken. Five dimensions of EO -- autonomy, innovativeness, risk taking, proactiveness, and competitive aggressiveness -- were identified. These dimensions represent distinct constructs that may vary independently of each other in a given context.

Linking the relationship between psychological traits and entrepreneurial orientation is imperative for theoretical and empirical reasons, because entrepreneurs with a certain psychological traits may have a tendency to exhibit certain degree of entrepreneurial orientation and showing this tendency may provide benefits to the organization. In prior research studies, achievement need, tolerance for ambiguity, risk taking and locus of control were analyzed with respect to entrepreneurial characteristics and were identified as correlates of being or desiring to be an entrepreneur (Ahmed, 1985; Begley& Boyd, 1987; Bonnett & Furnham, 1991). Prior research findings related to psychological traits have been corroborative and thus this research is aimed at providing additional insights and understanding to the relationship between psychological traits and entrepreneurial orientation. In the subsections that follow, some of the most researched psychological traits will be discussed and how they are related to entrepreneurial orientation.

Need for Achievement

In McClelland's (1961), *The Achieving Society*, the need for achievement trait has been empirically linked to entrepreneurial activity. The need for achievement is defined as a tendency to choose and persist at activities that hold a moderate chance of success or a maximum opportunity of personal achievement satisfaction without the undue risk of failure. From diverse samples of business executives, the author's findings revealed that senior marketing managers have the highest need for achievement. He posited that needs are learned and therefore culturally, not biologically determined; and some cultures produced more entrepreneurs because of the socialization process that creates a high need for achievement.

In a longitudinal analysis of the need for achievement scores of college freshmen, McClelland (1965) concluded that a high need for achievement is a predictor of entrepreneurship and is based on influences of childhood and adult training and experiences. McClelland's work was initially influenced by Murray's (1938) studies in the development of his Need for Achievement Theory (Fineman, 1977). McClelland shared with Murray the belief that analysis of fantasy is the best way to assess motives, which are primarily based on unconscious state. Through the usage of the Thematic Appreception Test (TAT), which requires the writing of imaginative stories by subjects in response to a set of pictures, the stories were content analyzed for achievement imagery to obtain an n Ach score by the author. Through the correlation studies in the laboratory, McClelland determined that those high in n Ach, as measured by the TAT, tended to exhibit an original five behavioral traits and was reduced to three: (1) Takes personal responsibility for finding solutions to problems; (2) Sets moderate achievement goals and takes calculated risks; and (3) Wants concrete feedback regarding performance. McClelland conducted a number of studies demonstrating that high n Ach and the subsequent manifestation

of the above behaviors correlated strongly with entrepreneurial success (McClelland, 1961, 1965a).

A number of studies suggest that need for achievement is higher in company founders, compared to managers (Begley & Boyd, 1987; Miner, Smith & Bracker, 1989). It is also related to company growth (Miner et al.1989). Such findings that relate the level of need for achievement of the founders and the financial growth of the organization may come from a relationship between the psychological traits of founders and the levels of entrepreneurial orientation they exhibit.

Internal Locus of Control

Rotter 1966 defined Locus of Control as an individual's perception about the underlying main causes of events in his/her life. Or, more simply: Individual believes that his/her behaviour is guided by his/her personal decisions and efforts (internal); or as unrelated to his or her actions and is guided by fate, luck, or other external circumstances (external). People with internal locus of control believe that they can control what happens in their lives. On the other hand, people with external locus of control tend to believe that most of the events in their lives result from luck, being at the right place at the right time, and the behaviors of powerful people. Research indicates that individuals with internal locus of control often have a more expressed need for achievement (Brockhaus 1982; Lao 1970; Gurin et al 1969).

In an empirical study conducted by Khan and Manopichetwattana (1989) they addressed the proposition whether the characteristics of innovative and non-innovative small firms have significant differences. Their sample was comprised of 50 manufacturing small businesses in the Texas area using cluster and correlational analyses to analyze the data. They found a positive relationship between internal locus of control and innovation. Boone, Debrabander and Van Witteloostujin (1996) empirical research investigation focused on the furniture industry with a sample comprised of small firms and family owned small businesses, they were interested in getting at whether chief executive officers or top management team internality had a positive effect on organizational outcomes. Replicating previously tested hypotheses, they found internal locus of control to be associated with company performance. Their findings corroborated prior study findings of (Begley and Boyd 987; Bonnett and Furnham 1991, Nwachukwu 1995) that internal locus of control is an important entrepreneurial psychological trait.

Tolerance for Ambiguity

Budner (1962) defined tolerance for ambiguity as the “tendency to perceive ambiguous situations as desirable,” whereas intolerance for ambiguity was defined as “the tendency to perceive … ambiguous situations as sources of threat” (p. 29). An ambiguous situation is one in which the individual is provided with information that is too complex, inadequate, or apparently contradictory (Norton, 1975, p. 607). The person with low tolerance of ambiguity experiences stress, reacts prematurely, and avoids ambiguous stimuli. On the other hand, a person with high tolerance of ambiguity perceives ambiguous situations/stimuli as desirable, challenging, and interesting and neither denies nor distorts their complexity of incongruity.

Frenkel-Bruswik (1948) reported a study comprised of 100 adults and 200 California children from ages 9 to 14 years old in which the researcher looked at their attitudes to ethnic prejudice and argued that tolerance for ambiguity is to be conceived as “a general personality

variable relevant to basic social orientation" (p. 268). Entrepreneurial managers are generally believed to tolerate more ambiguity than conservative managers because entrepreneurial managers confront less-structured, more uncertain set of possibilities (Bearse 1982), and actually bear the ultimate responsibility for the decision (Gasse 1982, Kilby 1971).

Theoretically, people who best tolerate ambiguity are those who obtain superior results if their strategic objective is to pursue growth. Entrepreneurs who seek to increase market shares in their respective industries face more uncertain phenomenon than those who seek to increase profitability. Because the strategy utilized to implement increase in market share is based on conditions of uncertainty, which requires a greater tolerance of ambiguity. Thompson (1967) stipulates that in a determinist world, the higher the number of external dependencies faced by firms, the greater the degree of uncertainty.

Dollinger (1983) with a sample size of 79 entrepreneurs using Budner's scale, he found that entrepreneurs scored high in the tolerance for ambiguity test. The results showed that tolerance for ambiguity trait is positively related to entrepreneurial activity. Gupta and Govindarajan (1984) data from 58 strategic business units revealed that greater marketing/sales experience, greater willingness to take risk, and greater tolerance for ambiguity, on the part of strategic business unit general manager, contribute to effectiveness in the case of "build" strategic business units; but hamper it in the case of "harvest" strategic business units. Carland and et al. (1989) research revealed that people who best tolerate ambiguity are also the most innovative. Tolerance for ambiguity is reported to relate to personal creativity (Tegano, 1990) and the ability to produce more ideas during brainstorming (Comadena, 1984).

These findings suggest that creativity and innovativeness requires a certain degree of tolerance for ambiguity. The ability to tolerate ambiguous situations may also be positively related to the risk-taking behavior of the entrepreneur. Risk-taking requires a certain degree of tolerance for ambiguity. In addition, research indicates that individuals with intolerance for ambiguity tend to perceive higher degrees of risk under the same circumstances (Tsui 1993). Proactive entrepreneurs do not abide by traditional ways of the status quo, but they continually question it in an attempt to improve and devise better operational methods and managerial styles.

Entrepreneurial Orientation

A firm entrepreneurial orientation refers to the entrepreneurial activities, how the entrepreneur undertakes the methods, practices, and decision-making styles to act entrepreneurially. It is similar to what managers in big organization used to act managerially according to Mintzberg (1973). Specifically, entrepreneurial orientation refers to the entrepreneur's disposition to autonomy, encourages experimentation (innovativeness), takes risk, takes initiatives (proactiveness), and aggressively competes within its market.

Covin and Slevin (1989); Ginsberg (1985); Lumpkin and Dess (1996); Morris & Paul (987); Schafer (1990) advanced Schumpeter's (1934, 1942) definition and they defined innovativeness as the firm's propensity to engage in new idea generation, experimentation, and research and development activities. This includes the development and enhancement of products and services and new administrative techniques and technologies for performing organizational functions. Lumpkin and Dess (1996) categorize innovation as either product-market or technological. Miller and Friesen (1978) suggest that product-market innovation focuses on product design, market research, and advertising and promoting. Maidique and Patch

(1982) suggest that technological innovation is comprised of product and process development, engineering, research, and an emphasis on technical expertise and industry knowledge.

Venkatraman (1989) suggests that proactiveness refers to processes aimed at anticipating and acting on future needs by seeking new opportunities, introducing new products and brands ahead of competition; and strategically eliminating operations that are in the mature or declining stages of the life cycle. Thus, proactiveness requires a desire and willingness to think and initiate actions to answer future situations and threats. Proactiveness is critical to entrepreneurial success because it suggests a forward-looking perspective that is accompanied by innovative activity.

Schumpeter's (1950) theory of "creative destruction" aptly describes head-to- head rivalry between firms as "incessant race to get and keep ahead of one another" (Kirzner 1973, p. 20). In a highly competitive market, leading firms are aggressively pursued by existing competitors and unforeseen challengers, that relentlessly seeks new ways to satisfy its customers (D' Aveni, 1994; Schumpeter, 1950).

Competitive aggressiveness refers to a firm's propensity to directly and intensely challenge its competitors to achieve entry or improve position, that is, to outperform industry rivals in the marketplace (Lumpkin and Dess 1996, p. 148). Lumpkin and Dess also argue that competitive aggressiveness also reflects a willingness to be unconventional rather than rely on traditional methods of competing (p. 149). Competitive aggressiveness can have numerous and diverse strategies and tactical manifestations. These manifestations or dimensions of aggressiveness have been the subject of several books and articles (Covin and Covin 1990, p. 2). For example, Porter (1985) outlined a number of common "offensive strategies" for achieving and maintaining competitive advantage.

Supportive Environment

Supportive environment refers to a combination of factors in the environment that play a role in the development or nurturing of entrepreneurship and entrepreneurial activities. Empirical studies on entrepreneurial environments suggest that societies that keep rules and regulations at minimum, offer tax incentives provide training and counseling services to start-up entrepreneurs, increase the likelihood of new venture creation (Dana 1987; 1990). Factors such as the availability of financial resources, location in large urban areas, and the presence of universities for training and research are also suggested to be very critical in increasing the rate and nurturing of new venture developments (Pennings 1982). It is also suggested that entrepreneurs need support services in preparing business plans, getting loans and business assistance from incubators (Hoy et al. 1991).

Aldrich and Wiedenmayer (1993) suggest that the sociopolitical environment may be so powerful to create or destroy entrepreneurship in a country. Covin and Slevin (1989) also consider environmental factors to be a reasonable start point for any analysis of entrepreneurship. They alleged that external variables moderate the relationship between entrepreneurial posture and firm performance. Covin and Slevin (1989) also pinpointed the idea that the external environment can be operationally defined in terms of forces or elements that are too numerous to incorporate in a specific sense into a single model.

H1 Need for Achievement is positively related to Entrepreneurial Orientation.
H2 Internal locus of Control is positively related to Entrepreneurial Orientation.
H3 Tolerance for Ambiguity is positively related to Entrepreneurial Orientation.

H4a Supportive Environment moderates the relationship between Need for Achievement and Entrepreneurial Orientation.
H4b Supportive Environment moderates the relationship between Internal Locus of Control and Entrepreneurial Orientation.
H4c Supportive Environment moderates the relationship between Tolerance for Ambiguity and Entrepreneurial Orientation.

METHODS

Research Instrument

The sampling frame for this study was a mailing list of the registered used auto dealers and owners of used car lots situated in a "deep" south Standard Metropolitan Statistical area (SMSA). Three hundred fifteen (315) self-reported questionnaires with a self-addressed, stamped return envelope were mailed to the randomly selected auto dealers from the original four hundred and forty (440) registered population list. A total of ninety five (95) questionnaires were returned, completed and usable, representing a 30.16 percent response rate of the 315 mailed questionnaires

Need for achievement was measured using a three-item, 7-point Likert type scale that was originally developed by Edwards (1959) to measure achievement motivation. The advantages of using EPPS over the other scales are: (1) Entrepreneurs scored higher than the norm on the achievement scale (Hornaday and Bunker 1970; Hornaday and Aboud 1971; Decarlos and Lyons 1979; Begley and Boyd 1986). (2). It is easier to score and administer than the other scales (Fineman 1977). (3). It has a higher internal consistency rate (.74) and stability across time than the projective scale (Fineman 1977). (4). Unlike the other scales, there is a consistent convergent validity of the measure in prior entrepreneurship research (Hornaday and Bunker, 1970; Hornaday and Abdoud 1971; Decarlos and Lyons 1979; Begley and Boyd 1986). The mean score of achievement motivation among respondents was 5.88, which indicated that, on the aggregate, used-car entrepreneurs possess a high level of need for achievement.

Internal locus of control was measured using a four-item, 7-point Likert type scale that was originally developed by Rotter (1966) to measure generalized expectancies. The researcher selected these scale items that are most relevant to entrepreneurs and company owners for space constraint and respondents' convenience. A higher score reflects higher internality of the entrepreneur under study. The four items adopted for this study are: (1a). Many of the unhappy things in people's lives are partly due to bad luck. (1b). People's misfortunes result from the mistakes they make. (2a). The idea that teachers are unfair to students is nonsense. (2b). Most students do not realize the extent to which their grades are influenced by accidental happenings. (3a) I have always found that what is going to happen will happen. (3b). Trusting to fate has never turned out as well for me as making a decision to take a definite course of action. (4a). Becoming a success is a matter of hard-work, luck has little or nothing to do with it. (4b). Getting a good job depends mainly on being in the right place at the right time. These scale items have been reported to have high reliability and validity in a number of studies (Boone, Debrabander and Witteloostuijin 1996; Boone and Debrabander 1993; Boone et al. 1990; Boone et al 1991). Rotter scale remains the most widely used and shortest scale to make use of the forced choices. The scale concurrent, construct and predictive validity remains impressively high (0.60-0.88) with alpha reliability of 0.69-0.76 (Furnham and Steele 1993, p. 452). The mean

score of internality among respondents was 5.70, which indicated that, on the aggregate, used car entrepreneurs possess a high level of internal locus of control.

Tolerance for ambiguity was measured using a three –item, 7-point Likert type scale that was originally developed by Budner (1962) to measure tolerance for ambiguity. The scale items selected are most relevant to entrepreneurs and small business owners. These negatively worded items are: (1).It is more fun to tackle a complicated problem than to solve a simple one. (2). Many of our most important decisions are based upon insufficient information. (3). Often the most interesting and stimulating people are those who don't mind being different and original. A higher score reflects a higher tolerance for ambiguity. Budner's scale has an average internal reliability of .49, which seems poor but Budner explained that the nature of the concept itself, the definition of which posits a complex, multidimensional construct provides for low or average reliability. He further asserted that the more complex the construct and the more complex the measure, the lower will the reliability estimate be. The most important advantage of this scale over the others is the freedom from social desirability bias and recognition of the highly complex structure of the concept. In terms of validity, its intercorrelation (0.85) with the other three scales was high enough to suggest that all four scales were tapping on the same dimensions. The prevailing strength of Budner's scale over the others is that, it was designed to measure three dimensions of ambiguity: the complexity, novelty and insolubility of a situation. Budner's scale is a natural choice of measurement instrument for a research study of this nature considering its many attributes. The mean score of tolerance for ambiguity among respondents was 5.24, which indicated that, on the aggregate, used car entrepreneurs possess above average level of tolerance for ambiguity.

The four dimensions of entrepreneurial orientation were measured using a thirteen–item, 7-point Likert-type scale that was designed to measure respondents' entrepreneurial orientation. The wording of these items was very similar to EO scales developed and tested for reliability by Khandwalla (1977), Miller (1983), Covin and Slevin (1986, 1989) and Covin and Covin (1990). Subsequent scale enhancement work conducted by Lumpkin (1998) was also consulted to capture distinctions between product/service and process innovativeness.

The mean score value of entrepreneurial orientation among respondents was 4.15, which indicated that, on the aggregate, used car organizations are entrepreneurial. This result is consistent with previous research studies (Chadwick 1998; Knight 1997; Naman & Slevin, 1993; Covin & Slevin, 1989). Table 1 summarizes the descriptive statistics of the study variables

Descriptive Statistics of Variables

Table 1

STATS	Supportive Environment	Need Achievement	Internal Locus of Control	Tolerance for Ambiguity	Entrepreneurial Orientation
Mean	5.61	5.88	5.70	5.24	4.15
Median	5.67	6.00	6.00	5.33	4.46
Mode	6.30	6.30	6.00	5.33	4.46
Std. Dev.	1.38	1.27	1.09	1.18	1.41

Psychological Traits and Entrepreneurial Orientation

As can be seen from the correlation table, psychological variables are correlated among each other. This was expected due to the self-report nature of the data, as well as conceptual relationships between psychological
traits. The results of Pearson's correlations suggest significant positive correlations between the psychological traits (need for achievement, internal locus of control, and tolerance for ambiguity) and entrepreneurial orientation (See Table 2)

	Entrepreneurial Orientation	Need for Achievement	Internal Locus of Control	Tolerance for Ambiguity
Entrepreneurial Behavior				
Need for Achievement	.36**			
Internal Locus of Control	.22*	. 29**		
Tolerance for Ambiguity	.32**	-.05	.10	
Supportive Environment	.31**	.18*	.24*	.28**

Correlation Coefficients Table 2

Correlation is significant at level 0.01**
Correlation is significant at level 0.05*

Hypotheses H1, H2, and H3, were tested employing hierarchical regression analysis. Hierarchical regression is the statistical technique of choice when a single metric dependent variable is presumed related to one or more metric independent variables (Hair et al., 1995). The objective of this statistical procedure is to explain changes in the dependent variable with respect to changes in the independent variables.

Hypothesis H1 states that need for achievement is positively related to entrepreneurial orientation. The results of the regression analysis are shown in Table 2. The first independent variable entered in the hierarchical regression was need for achievement. A significant

relationship was found (b = .369, p<. 001), and it explained 13 percent of the variance in entrepreneurial orientation.

Hypothesis H2 states that internal locus of control is positively related to entrepreneurial orientation. Hypothesis H3 states that tolerance for ambiguity is positively related to entrepreneurial orientation. Statistical analyses were performed on the full model (internal locus of control, and tolerance for ambiguity) employing the hierarchical procedure of SPSS (Morgan & Griego 1998, p. 142). Results showed significant relationships between tolerance for ambiguity and entrepreneurial orientation (b = .305, p < .01) with additional variance change of 19 percent explained in entrepreneurial orientation. The positive relationship between internal locus of control (b = 0.081, p. = .394), and entrepreneurial orientation was not significant at level 0.05 but significant at level 1. This result may be attributable to the small sample size and low statistical power. See (Table 3).

Table 3

Regression Results: Psychological Traits and Entrepreneurial Orientation

Independent Variables	Beta	SE	F	R^2
Need for Achievement	.369***	.093	13.74	.13
Internal Locus Of Control	.081	.106	10.46	
Tolerance for Ambiguity	.305**	.091		
Change				19
R^2				32

Adjusted R^2 0.30, N = 94, *** P < 0.001, ** P < 0.01, Change R^2 = .15

Hypothesis 4a – 4c stated that supportive environments moderate the relationships between psychological traits ((need for achievement, internal locus of control, and tolerance for ambiguity) and entrepreneurial orientation. The results of moderated multiple regression analysis support these relationships. The interactions of need for achievement and supportive environments variables provided an incremental variance change of 0.027 at a significance level of p < 0.001. The interactions of internal locus of control and supportive environments variables provided an incremental variance change of 0.096 at a significance level of p < 0.01. The interactions of tolerance for ambiguity and supportive environments variables provided an incremental variance change of 0.044 at a significance level of p < 0.001. Thus, hypotheses 4a-4c, are supported.

Regression Results: Supportive environments moderating the relationships between psychological traits and entrepreneurial orientation.

Table 4

0 Entrepreneurial Orientation (Dependent Variable)	Beta	R^2	Changes in R^2
Independent Variables			
Need for Achievement	.348***	.130	
Internal Locus of Control	.055	.014	
Tolerance for Ambiguity	.265**	.108	
Supportive Environment	.151	.020	
R^2 0.301			
Need for Achievement X Supportive Environment	.396***	.157	.027
Internal Locus of Control X Supportive Environment	.332**	.110	.096
Tolerance for Ambiguity X Supportive Environment	.390***	.152	.044
		.489	0.208

R^2 0.489, Change in R^2 0.208, *** P < 0.001, ** P < 0.01, * P < 0.05

DISCUSSION

The entrepreneurial orientation dimension consisting of innovativeness, risk taking behavior, proactiveness represents a recent model of conceptualization of entrepreneurial activities than have been employed in prior studies. This research study revisits the question of whether psychological traits –need for achievement, locus of control, and tolerance for ambiguity -- are useful predictors by investigating their relationship to entrepreneurial orientation; and whether supportive environments moderate the relationships between entrepreneurial orientation and psychological traits.

Prior research studies into entrepreneurial activities have focused attention on the effects of entrepreneurial behavior and the principal dependent variables have been financial performance, environmental uncertainty, among others (e.g., Sandberg & Hofer, 1987; Dess, Lumpkin, & Covin, 1997). Furthermore, majority of the past research findings have converged on the relationship between entrepreneurship and psychological traits with primary focus of exploring the performance implications, and distinguishing entrepreneurs from the general population (Ahmed, 1985; Begley& Boyd, 1987; Bonnett & Furnham, 1991; Nwachukwu 1995).

In contrast, this research ventured to consider the dimension of entrepreneurial orientation as the dependent variable and psychological traits as the predictors. In addition, it provided significant insights into the influences of supportive environment on the relationship between entrepreneurial orientation and psychological traits. In essence, it lends support to the criticisms advanced by Gartner (1988), Low and MacMillan (1988), Aldrich and Zimmer (1986), those psychological traits alone are inadequate in explaining entrepreneurial behavior. Again, please note Gartner (1988) and Vesper (1980) suggestion that the creation of an organization is a complex process and a contextual event, the outcome of many influences. Finally, this is a more robust model for predicting entrepreneurial behavior because it incorporates variables from three different levels of analyses, including the individual personality traits, the firm level of entrepreneurial behavior or orientation, and the positive influence of supportive environment.

Future data-based research studies addressing psychological traits and sociological influences on entrepreneurial orientations should employ a more representative sample from multiple industries with provisions for inter-industry variations in life cycles. The length of the questionnaire should be significantly reduced to improve the response rate. A multiple-item scale should be adapted to measure the respective psychological constructs. A multiple-item scale is appropriate for reliability when primary data are collected (Chandler and Lyon, 2001). Because of the dynamic process of entrepreneurship, a triangular approach comprised of the three prevalent approaches including managerial perception employed in this study, resource allocation and longitudinal approaches should be employed in future research to minimize the limitations of these findings.

Overall, these research findings have a number of theoretical and managerial implications. For example, venture capitalists, management practitioners, and other business professionals who are involved in high risk ventures may employ this entrepreneurial orientation model as a useful tool to assess entrepreneurial capabilities, managerial tendencies that may improve return on investment relative to human capital. Also, it may be a useful tool for selecting team members for new business start ups, and evaluating applicants for intrapreneurship positions in the corporate world, among others. Another implication is in the area of entrepreneurship pedagogy, linking the relationship between psychological traits and entrepreneurial orientation could be used as a technique for identifying students for entrepreneurial careers. Another significant contribution of this study is that the study was conducted with actual entrepreneurs in the service sector. Prior studies have drawn their samples from mostly students, managers and non-entrepreneurs (Twomey 1988; Miner 2000). In addition, the service sector has received very little attention in previous entrepreneurship research, yet it represents one of the fastest growing sectors in the global economy (Zahra et al., 1999).

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