

Does level of education influence psychological traits? Evidence from used car entrepreneurs

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ABSTRACT

The entrepreneurship literature is inundated with controversy on discerning an appropriate definition of entrepreneurship and the entrepreneur. This research gap is further augmented by researchers attempting to determine appropriate sociological influences that may impact the relationship between psychological traits and entrepreneurial orientations.

Previous data-based research studies have been criticized because of their use of single level of analysis and a majority of the studies have been conducted in the manufacturing industries. The service industry, which represents one of the fastest growing sectors in the global economy, has received minimal attention. This research study addresses these research voids in the entrepreneurship literature.

This research study was conducted to empirically examine the levels of education on the relationships between psychological traits and entrepreneurial orientations. The sample was comprised of used car entrepreneurs located in a “deep south” capital city Standard Metropolitan Statistical Area (SMSA).

The relationship between psychological traits and entrepreneurial orientations were tested using hierarchical regression analysis. Findings suggest significant positive relationships between psychological traits and entrepreneurial orientations.

The influence of level of education on the relationships between psychological traits and entrepreneurial orientations were tested using moderated multiple regression analysis. Findings suggest that the interaction effects of levels of education and psychological traits had positive variance change at significant levels in explaining entrepreneurial orientations.

This research study findings reported herein tends to provide modest support and corroboration to the criticisms that psychological traits alone are inadequate to explain what constitutes entrepreneurial orientations and defining an entrepreneur. Findings also tend to indicate that entrepreneurship is an outcome of many events and influences.

Keywords: Education, Influence, Psychological, Traits, Used, Cars

Introduction

The entrepreneurship literature is filled with controversy on discerning appropriate definitions of an entrepreneur and entrepreneurship or the inconsistency of personality traits study in entrepreneurship, (e.g. 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; Schumpeter 1934; Knight 1921). This lack of consensus has impeded progress for researchers toward building and testing a broader theory of entrepreneurship, and has made it especially difficult for them to investigate the relationship of entrepreneurship to performance.” Hornaday (1992, p. 12) continued “there is no accepted definition—working or otherwise —of the terms” “entrepreneur” and “entrepreneurship”...the lack of consensus...ensnares nearly every empirical or theoretical research effort.”

Many researchers have defined Entrepreneurship as the creation of a new venture or a new organization (Gartner 1988). Lumpkin and Dess (1996) are of the opinion that entrepreneurship encompasses every step taken by an entrepreneur in entry to a new business and its concomitant problems of new start-ups, while Entrepreneurial Orientation encompasses the processes; methods, practices, decision-making styles managers use to act entrepreneurially.

Entrepreneurial Orientation is comprised of five dimensions: namely- autonomy, innovativeness, risk taking, proactiveness and competitive aggressiveness (Lumpkin & Dess, 1996 p. 137). The five dimensions may determine the success of new business formation (entrepreneurship) or the successful managing of a new business (entrepreneurial orientation).

The psychological 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 and as suggested by Gartner (1988, p. 57) and Vesper (1980) that creation of an organization is a complex process and the outcome of many influences, this research study will explore the relationships between Psychological Traits (Need for Achievement, Internal Locus of Control, and Tolerance for Ambiguity) and Entrepreneurial Orientation, and whether level of education does influence the relationships between psychological traits and entrepreneurial orientation.

Literature Review

Need for Achievement

In McClelland (1961), *The Achieving Society*, the need for achievement trait has been empirically linked to entrepreneurial behavior. 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 Apperception 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 have lent support to the aforementioned findings (Shaver & Scott 1991; Johnson 1990; Miner, Smits & Bracker 1989; Begley & Boyd 1987).

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 1987; Bonnett and Furnham 1991, Nwachukwu 1995) that internal locus of control is an important entrepreneurial personality 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 (Bears 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 tend to indicate 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.

Education

A number of studies have argued that education facilitates entrepreneurial success by providing for the nourishment of competencies such as innovativeness and ability to acquire resources. These competencies are regarded as imperatives to success in many entrepreneurial ventures (Bird 1993; Ronstadt 1984). Notably, in highly technical industries, a specified amount of education may be required as a prerequisite for employment.

. Borjas (1987) study of self-employment experience of immigrants and native-born using both 1970 and 1980 Census data, analyses revealed that education has a positive and significant impact on self-employment rates. In all samples, the higher the education levels, the higher increase in the individual's ability to provide a service to those persons who may desire it; or perhaps that higher education levels increase the organizational or managerial skills of workers.

Vesper (1980) pointed out that the more education an entrepreneur has had in business (especially small business) the more likely the entrepreneur will succeed in the current venture. Vesper (1980) asserts that prior mental programming in the form of both formal education and experience in the particular line of work of the new venture repeatedly crops up as correlated in generally positive ways with odds of success in studies of startups (p. 32). The level of technical and business skills is also a major factor in successfully starting and managing a small business (Davidson 1991; Vesper 1983). In Davidson's (1991) Sweden study, the findings also suggested that business-related experience and business education were highly correlated with the entrepreneur's ability to start and manage a business.

Lerner, Brush and Hisrich (1995) conducted a study to determine which factors affecting performance of Israeli women entrepreneurs using a sample of 220 businesses. They reported that human capital and business skills (education) have significant explanatory power on performance. Their findings also revealed that a majority of the entrepreneurs were highly educated with college and graduate degrees. The research effort of Bird (1993) showed a trend toward higher educational attainment among entrepreneurs.

Entrepreneurial orientation

Entrepreneurial Orientation involves the intentions and actions of key players functioning in a dynamic generative process aimed at new venture creation. The key dimensions that characterize an entrepreneurial orientation include propensity to act autonomously, willingness to innovate and take risk, and tendency to be aggressive toward competitors and proactiveness relative to marketplace opportunity (Lumpkin & Dess, 1996). Specifically, the firms that act independently (autonomously), encourage experimentation (innovativeness), take risks, take initiative (proactiveness), and aggressively compete within their markets have strong entrepreneurial orientation; whereas, the firms that lack some or all of these have a weak entrepreneurial orientation.

The firms with strong entrepreneurial orientations are willing to take on high-risk projects in exchange for potentially high returns. These firms are also bold and aggressive in the pursuit of

opportunities and in initiating actions (for example, first to market new product or service lines) to which their competitors may respond. In addition, these firms characteristically emphasize technological leadership and research development (Khandwalla, 1977). The firms with weak entrepreneurial orientations are highly risk-averse, non-innovative, and reactive (Miller, 1983).

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.

Begley and Boyd (1987) conducted an empirical investigation to determine if the prevalence of five psychological attributes (need for achievement, locus of control, risk taking propensity, tolerance for ambiguity, and type A behavior) distinguishes entrepreneurs (founders) from business managers (non-founders) and if these entrepreneurial attributes relate to performance. The study using a survey instrument in sampling 239 chief executives in New England region found that entrepreneurs (founders) scored significantly higher than small business managers (non-founders) for three of the five dimensions: need for achievement, risk taking propensity, and tolerance for ambiguity. Both groups manifest an internal locus of control; that is, they share a perception that they can influence events in their lives and are thereby, free from external forces such as destiny or luck. In terms of Type A behavior, entrepreneurs and small business managers alike scored 60 percent above the midpoint on the Type A scale. Such Type A persons tend to be competitive, restless strivers who constantly struggle against limitations of time. These empirical research findings suggest that need for achievement, risk-taking propensity, and tolerance for ambiguity are higher in entrepreneurs than small business managers.

The empirical study conducted by Khan and Manopichetwattana (1989) 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 and used cluster and correlational analyses to analyze the data. They found a positive relationship between internal locus of control and innovation. Their findings corroborated prior study findings (Begley and Boyd 1987; Bonnett and Furnham 1991, Nwachukwu 1995) that internal locus of control is an important entrepreneurial personality trait. In light of the aforementioned literature reviewed, and theoretical support, the following hypotheses are formulated to be tested in the study.

- 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.
- H_{4a} Level of Education moderates the relationship between Need for Achievement and Entrepreneurial Orientation.
- H_{4b} Level of Education moderates the relationship between Internal Locus of Control and Entrepreneurial Orientation.
- H_{4c} Level of Education moderates the relationship between Tolerance for Ambiguity and Entrepreneurial Orientation.

Research Instrument

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 mean score of achievement motivation among respondents was 5.88, which indicated that, on the aggregate, used-car entrepreneurs possess a high level of achievement motivations.

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 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 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.

Entrepreneurial orientation dimensions were measured using an eleven–item, 7-point Likert-type scale that was designed to measure respondents’ entrepreneurial orientations. The mean score value among respondents was 4.15, which indicated that, on the aggregate, used car organizations are entrepreneurially oriented. 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

STATISTICS	Need Achievement	Internal Locus of Control	Tolerance for Ambiguity	Entrepreneurial Orientatation
Mean	5.88	5.70	5.24	4.15
Median	6.00	6.00	5.33	4.46
Mode	6.30	6.00	5.33	4.46

Sample

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.

Psychological Traits and Entrepreneurial Orientation

The results of Pearson’s correlations suggest significant positive correlations between the three sub constructs of psychological traits (need for achievement, internal locus of control, and tolerance for ambiguity) and entrepreneurial orientations. See Table 2

Correlation Coefficients Table 2

	Entrepreneurial Orientation	Need for Achievement	Internal Locus of Control	Tolerance for Ambiguity
Entrepreneurial Orientation				
Need for Achievement	.36**			
Internal Locus of Control	.22*	.29**		
Tolerance for Ambiguity	.32**	-.05	.10	
Level of Education	.26**	.25**	.27**	.05

** = Significant at 0.01 level, * = Significant at 0.05 level

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 orientations.

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 15 percent explained in entrepreneurial orientations. The positive relationships between internal locus of control and entrepreneurial orientations were not significant (b = 0.081, p. = .394). See (Table 2).

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		
Tolerance for Ambiguity Change	.305**	.091		15
R ²				28

Adjusted R² 0.25, N = 94, *** P < 0.001, ** P < 0.01, Change R² = .15

The result of the moderated regression is presented on Table 4. The interactions terms of the level of education and psychological traits were computed using SPSS by multiplying the levels of education variable and each of the three sub constructs of psychological traits (need for achievement, internal locus of control, and tolerance for ambiguity) to ascertain whether R² of the two products produced incremental explanatory power of entrepreneurial orientations. The interaction of need for achievement and levels of education variables produced R² change of 0.003 at a significance level of P < 0.01. The interactions of internal locus of control and levels of education produced incremental R² change of 0.074 at a significance level of p < 0.01. The interactions of tolerance for ambiguity and levels of education produced incremental R² change of 0.026 at a significance level of p < 0.001.

Overall, the moderated multiple regression results suggest that, the interactions of levels of education and the three sub constructs of psychological traits (internal locus of control, tolerance for ambiguity,) produced incremental R² change or higher explanatory powers of entrepreneurial orientations as hypothesized in H_{4a}, H_{4b}, and H_{4c}.

Table 4

Regression Results: Education Moderating the Relationships Between Psychological Traits and Entrepreneurial Orientations

Entrepreneurial Orientation (Dependent Variable)	Beta	R ²	Changes in R ²
Independent Variables			
Need for Achievement	.342***	.120	
Internal Locus of Control	.051	.014	
Tolerance for Ambiguity	.300***	.108	
Levels of Education	.143	.018	
R² 0.26			
Moderation Variables			
Need for Achievement X Levels of Education	.351**	.123	.003
Internal Locus of Control X Levels of Education	.297**	.088	.074
Tolerance for Ambiguity X Levels of Education	.367***	.134	.026
		0.350	0.103

R² 0.350

Change in R² 0.10, *** P < 0.001, ** P < 0.01

Discussion

The theoretical underpinnings for this research study specified that psychological traits relate positively to entrepreneurial orientations, and levels of education moderate the relationships between psychological traits and entrepreneurial orientations.

Results of the Pearson's correlations largely support significant positive relationships between psychological traits and entrepreneurial orientations. Also, the results of the hierarchical regression provide support for significant relationships for two of the three sub constructs of

psychological traits (need for achievement, tolerance for ambiguity) and entrepreneurial orientations. Thus, hypothesis 1, which states that need for achievement, is positively related to entrepreneurial orientations, and hypothesis 3, which states that tolerance for ambiguity is positively related to entrepreneurial orientations are supported. Hypothesis 2 is not supported. Moderated regression results support that, levels of education moderate the relationships of the three sub-constructs of psychological traits (need for achievement, internal locus of control, and tolerance for ambiguity).

In summary, these research findings as indicated in the descriptive statistics suggest that, on the aggregate, used car entrepreneurs possess high level of achievement motivation, high level of internal locus of control, and high level of tolerance for ambiguity. The Pearson correlation results suggest significant positive correlations between the three sub constructs of psychological traits (need for achievement, internal locus of control, and tolerance for ambiguity) and entrepreneurial orientations. Hierarchical regression results suggest significant positive relationships between need for achievement, tolerance for ambiguity and entrepreneurial orientation, while the moderated regression results suggest that levels of education moderate the relationships of the three sub-constructs of psychological traits (need for achievement, internal locus of control, and tolerance for ambiguity) and entrepreneurial orientation.

Managerial Implication

This study provides some significant insights that suggest psychological traits are important variables among other influences in the dynamic nature of entrepreneurship and entrepreneurial orientation. It also suggests the importance of education as a moderating variable in enriching and enhancing entrepreneurial behavior, such as, engaging in new idea experimentation, research and development activities including the development of products, services, administrative techniques, and technologies. It underscores the connection of formal education to entrepreneurial activities and performances. Given the considerable resources derived from good education-- entrepreneurs who have learned to plan, demonstrate increased mastery, knowledge, comprehension that would assist them in the process of managing a business or starting one or initiating actions to exploit future opportunity through the benefits of having had a high level of education may perform much better and more effective than those who possess very limited education. Generally, this study suggest that possessing, high achievement motivation, high level of internality, high tolerance for ambiguity with a blend of high level of education may improve entrepreneurial behavior relative to proactiveness, innovativeness, competitive aggressiveness and risk taking behavior in managing business organization.

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