JOURNAL OF SMALL BUSINESS STRATEGY

A MODEL OF POTENTIAL ENTREPRENEURSHIP: PROFILES AND EDUCATIONAL IMPLICATIONS

James W. Carland
JoAnn C. Carland
Western Carolina University

ABSTRACT

In an effort to determine the propensity for entrepreneurship of potential entrepreneurs, students enrolled in Small Business Management classes at the graduate and undergraduate level were examined. A series of surveys including Jackson's Personality Inventory for Innovation and Risk Taking, and Jackson's PRF for Need for Achievement as well as the Carland Entrepreneurship Index were completed. The results supported the empirical development of a model of potential entrepreneurship. That model was tested from theoretical, statistical and visual perspectives. Finally, the model was used to develop implications for entrepreneurship education.

INTRODUCTION

Who is an entrepreneur? How does one draw the lines? How does one give distinction to the profile? Such are the questions which are being asked by the researchers. When surveying the literature, the term entrepreneur is ubiquitous. It describes individuals who own businesses of every shape and size. It is used in the literature of small business and in the literature of large corporations. How can such diversity describe, detail or delineate the true entrepreneur? Is s/he male or female, black or white or brown? Is s/he found in the halls of Corporate America or in the corner hardware store? What is it that researchers and educators are seeking and how can it be defined?

DEFINITIONS OF ENTREPRENEUR

In the United States, Ely (1912) was one of the first to explain the term, *entrepreneur*. Interestingly, Ely (1912) explained that economists were forced to choose a term, *entrepreneur*, from the French language because the earlier terms dealing with individuals who started businesses had become corrupted. These earlier terms included *undertaker*, which Ely explained had been appropriated by a single group of business owners, and *adventurer* which had come to imply a level of rashness which was undesirable (Ely, 1912).

Schumpeter (1934) credited Mill (1848) with bringing the term, *entrepreneurship*, into general use among economists. Mill (1848) believed that the key factor in distinguishing a manager from an entrepreneur was the bearing of risk. The idea of risk bearing has been

integral as far back as Cantillon, circa 1700, who described an entrepreneur as a rational decision maker who assumes the risk and manages the firm (Kilby, 1971). Perhaps the most important aspect of entrepreneurship from a societal perspective is innovation (Brockhaus, 1982). McClelland (1961) was a champion of that concept. Drucker (1985) posits that entrepreneurship is innovation in a business setting.

ENTREPRENEURSHIP EDUCATION

For some time researchers have looked to education as the means to spur entrepreneurial activity. Entrepreneurship and small business classes are gaining popularity in many large and regional institutions today, often with high enrollments. After all, is not starting one's own business the American Dream? Entrepreneurial education and student potential for entrepreneurial activities have been examined by such authors as Birley, Gross, & Saunders (1986); Hills & Welsch (1986); Miller (1987); Sexton & Bowman (1983, 1984, 1986); Barbato & Durlabhji (1989); Solomon & Fernald (1990); and Robinson, Huefner, & Hunt (1991).

Various instruments and hypotheses have been tested and the results have varied greatly. Many authors have created their own instruments (e.g., Sexton & Bowman, 1983, 1984, 1986; Robinson, Huefner, & Hunt, 1991; Carland, Carland & Hoy, 1992) and others have used existing instruments to test their theories (e.g., Hoy & Boulton, 1983; Solomon & Fernald, 1990; Barbato & Durlabhji, 1989). Yet because of the various methodologies, different instruments and samples used, there is no universal portrait of an entrepreneur, much less a profile of potential entrepreneurs.

It has long been established that owners of small businesses are not homogeneous and yet terms for various sets of owners are used interchangeably. Many definitions have been posited but none seems comfortable enough to most entrepreneurship researchers to become generally accepted. Some seem to follow the more generic approach of identifying anyone who starts a business (Gartner, 1988) or more than one business (Robinson et al., 1991) as an entrepreneur. Others tend to follow the more differentiating approach posited by Carland, Hoy, Boulton and Carland (1984) which suggests that small business owners are more family oriented in their focus and entrepreneurs are more growth and profit oriented in their perceptions. Still others posit a series of different groups of business owners, each of whom displays unique characteristics (Vesper, 1990). Nevertheless, there has been no clear cut distinction or definition universally accepted in the literature.

Process versus behavior arguments still rage as to what initiates the starting of a business and determines an entrepreneur. The process of opening one's doors (Gartner, 1988) or making the first sale (Gatewood, Shaver and Gartner, 1992) are argued by some as the only viable definition of entrepreneurship without regard to potential for success or goals. Others argue that personality traits have a major impact on the process (Carland, Hoy & Carland, 1988). There have been empirical studies which imply that the process of launching a business and the personality traits which drive that process are inextricably entwined (Carland, Carland & Dye, 1991). The search continues.

METHODOLOGY OF THE RESEARCH

Two groups of students enrolled in Small Business classes at a regional university in the southeast at the graduate (N = 55) and undergraduate levels (N = 50) were surveyed to determine their propensity for entrepreneurship. Since the courses were elective in nature, the inference was that an interest in the subject existed. Several survey instruments were administered to the students over the period of the semester. The survey results were examined empirically and the insights which the analysis provided were utilized to develop a model of potential entrepreneurshipand to draw conclusions with regard to the educational implications inherent in the model.

Several instruments were employed with established reliability and validity to determine the level of entrepreneurial drive and other key characteristics displayed by students. The purpose was to attempt to draw a profile of potential entrepreneurs. The instruments measured the need for achievement, preference for innovation, risk taking propensity and entrepreneurial drive.

The Achievement Scale of the Personality Research Form (Jackson, 1974) was used to measure the need for achievement. Jackson (1974) reported that the test-retest reliability (N=135) was .80, and odd-even reliability (N=192) was reported to be .77. Jackson and Guthrie (1968), testing for validity, reported correlations with self ratings and peer ratings of .65 and .46, respectively. These findings support the conclusion that the instrument contains convergent and discriminant validity.

Risk taking propensity was measured using the Risk Taking Scale of the Jackson Personality Inventory (Jackson, 1976). For risk taking propensity, Jackson (1976) tested the internal consistency reliability with two samples (N=82 and N=307), and reported values of .93 and .91 using Bentler's coefficient theta, and .81 and .84 using coefficient alpha. Testing for validity (N=70), Jackson (1976) reported correlations with the completion of an adjective checklist, with self rating and peer rating of .75, .77, and .20 respectively.

Innovation was measured using the Innovation Scale of the Jackson Personality Inventory (Jackson, 1976). The internal consistency reliability of the Innovation Scale produced values of .94 and .93 using Bentler's coefficient theta, and .83 and .87 using coefficient alpha. Validity was checked using the completion of an adjective checklist, with self rating, and peer rating of .79, .73, and .37, respectively.

Reliability for the instruments pertaining to risk taking propensity, preference for innovation, and need for achievement were analyzed in a study by Stewart, Carland and Carland (1996) using Cronbach's Alpha. The alphas were .76, .77, and .72, respectively. These scores suggested that the instrument accurately measured the above characteristics, and that the individual items on the test produced comparable patterns of responses over all cases.

The Entrepreneurship Index administered in the research is the 33 item forced choice form of the Carland Entrepreneurship Index. The Index measures the strength of an individual's entrepreneurial drive and it was shown to have high validity and reliability in a

variety of statistical evaluations (Carland, Carland & Hoy, 1992). In a sample of 209 business owners, the Index produced split-half, odd-even reliability of .73. The Index also produced a Kuder-Richardson or Cronbach Alpha score of .73. With dichotomous questions, the Kuder-Richardson produces the same score as the Cronbach Alpha test for validity (Bruning and Kintz, 1987). A reliability coefficient of .70 or higher means that the test was accurately measuring some characteristic of the people taking it and that the individual items in the test were producing similar patterns of response in different people. The statistics of .73 indicate that the Index produces valid results (Bruning & Kintz, 1987). In a test-retest correlation using 40 business owners retested at least two months after the original test date, there was a statistically significant correlation of .80 indicating that the index was consistent over time in producing unique scores for respondents.

ANALYSIS OF THE DATA

The following table displays the make up of the sample by academic level and sex. As the table indicates, the 105 respondents were almost evenly divided between graduate and undergraduate students, although there were more females than males in the graduate group.

	Undergraduate	Graduate	Total
Male	24	16	40
Female	26	39	65
Total	50	55	105

The first step in the analysis was an examination of correlations among the scores on the various instruments. A Pearson correlation was conducted on the scores for the need for achievement (ACH), preference for innovation (INN), and risk taking propensity (RISK) instruments, and the Carland Entrepreneurship Index (CEI). The results are displayed in the following exhibit.

PEARSON CORRELATION MATRIX				
	ACH	INN	RISK	CEI
Need for Achievement	1.000			
Preference for Innovation	0.274	1.000		
Risk Taking Propensity	0.325	0.374	1.000	
Carland Entrepreneurship Index	0.451	0.439	0.492	1.000
PROBABILITIES				
	ACH	INN	RISK	CEI
Need for Achievement	.000			
Preference for Innovation	.005	.000		
Risk Taking Propensity	.001	.000	.000	
Carland Entrepreneurship Index	.000	.000	.000	.000

As the exhibit shows, there is a significant relationship between the scores on all of the instruments. The highest correlations are between scores on the CEI and the scores on the other instruments.

The correlation analysis suggests that there is a potential for the development of a model of entrepreneurial drive, as measured by the CEI, among these potential entrepreneurs. To that end, the relationships between instrument scores were examined in more detail. First, the direction of the relationships between the CEI and the other scores was determined. The researchers employed the quadratic smoothing technique (Wilkenson, 1990) in preparation of a graph of entrepreneurial drive as a function of the need for achievement. The graph showed an upward sloping line of best fit, supporting the existence of an appropriate relationship. The quadratic smoothing analysis was repeated with entrepreneurial drive as a function of risk taking. Again, the trend line supported the existence of an appropriate relationship. Finally, entrepreneurial drive as a function of the preference for innovation was examined. That graph also supported additional analysis.

Noting that the graphical analyses and quadratic smoothing techniques supported appropriate relationships between entrepreneurial drive and the other characteristics, group diversity and its potential impact on the data were considered. First, there was an investigation of whether the involvement of both undergraduate and graduate students in the data set has any influence on the relationships among the variables. To consider this question, a group of independent t-tests were performed. First, t-tests were calculated on the CEI, Risk, Innovation and Achievement scores grouped by status of the respondent: undergraduate or graduate student. The results are displayed in the following exhibit.

T-TESTS BETWEEN GRADUATE AND UNDERGRADUATE STUDENTS					
Carland Entrepreneurship Index					
Group	N	Mean	SD	T	p
Graduate Students	55	21.273	4.057	2.047	.043
Undergraduate Students	50	19.440	5.011		
Preference for Innovation					
Group	N	Mean	SD	T	p
Graduate Students	55	13.709	4.545	1.404	.164
Undergraduate Students	50	12.327	5.398		
Need for Achievement					
Group	N	Mean	SD	T	p
Graduate Students	55	11.545	2.911	1.601	.113
Undergraduate Students	50	10.571	3.253		
Risk Taking Propensity					
Group	N	Mean	SD	T	p
Graduate Students	55	11.655	4.904	1.046	.298
Undergraduate Students	50	10.592	5.400		

The exhibit shows that there were differences in entrepreneurial drive as measured by the CEI between the two groups, but there were no differences in the other instrument scores. Graduate students displayed stronger entrepreneurial drive, as measured by the CEI, than undergraduate students. Clearly, there are characteristics displayed by the graduate students in this study which influence the index. These factors do not include the need for achievement, preference for innovation, or risk taking propensity. This suggests that any model which might evolve will be underdefined. Nevertheless, given the fact that academic standing had no effect on the key variables of innovation, risk and achievement, the possibility of a model employing those factors as predictors of entrepreneurship can be investigated.

Next, an investigation of sex was considered as a factor in the model. Again, t-tests were conducted, this time between males and females. The results are displayed below.

T-TESTS BETWEEN MALE AND FEMALE STUDENTS					
Carland Entrepreneurship Index					
Group	N	Mean	SD	T	p
Males	65	21.369	3.955	2.666	.010
Females	40	18.825	5.178		
Preference for Innovation					
Group	N	Mean	SD	T	p
Males	65	14.531	3.932	3.777	.000
Females	40	10.700	5.612		
Need for Achievement					
Group	N	Mean	SD	T	p
Males	65	11.516	2.600	1.667	.100
Females	40	10.400	3.699		
Risk Taking Propensity					
Group	N	Mean	SD	T	p
Males	65	13.016	4.474	5.151	.000
Females	40	8.175	4.779		

As the exhibit reveals, males produced higher scores on entrepreneurial drive, preference for innovation, and risk taking propensity. This finding suggests that sex may well have a bearing on a model of potential entrepreneurship. Nevertheless, the fact that the females were consistently lower in all three areas in which differences exist, suggests that such differences may not prevent the development of a model.

Since the preliminary examination disclosed a strong relationship between entrepreneurial drive and the other three characteristics, the analysis was continued by examining the value of those three factors as predictors of entrepreneurship. To identify relationships in the data, a stepwise regression using the CEI as the dependent variable and

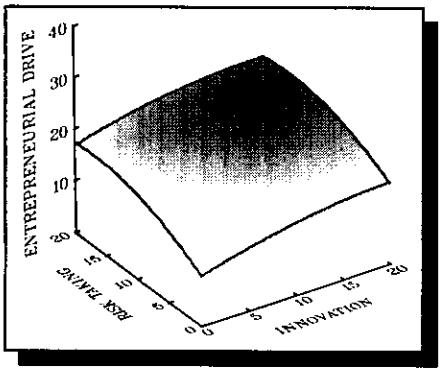
preference for innovation, risk taking propensity, and need for achievement as the independent variables was conducted. The results are displayed in the following exhibit.

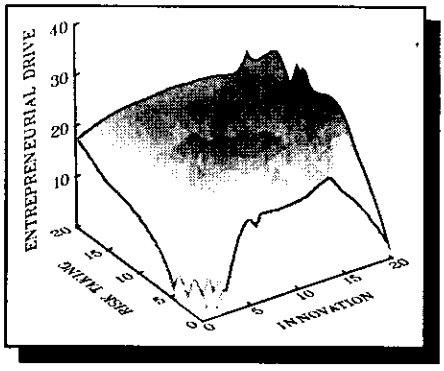
As the exhibit shows, the stepwise regression indicated that all three factors, innovation, risk and achievement affected entrepreneurial drive as measured by the CEI. The final R^2 is a respectable 39%. Clearly, the independent variables do not explain entrepreneurial drive fully, but they do contribute to the function in significant ways.

STEPWISE REGRESSION ANALYSES					
Dependent Variable: Entrepreneurial Drive					
Step # 1				R Square:	0.242
Variable	Coefficient	Std Error	Std Coef Tolerance	F	p
Risk	0.442	0.078	0.492 .1E+.01	32.558	.000
Step # 2				R Square:	.337
Risk	0.347	0.007	0.386 0.89457	20.319	.000
Achievement	0.486	0.128	0.325 0.89457	14.431	.000
Step # 3				R Square:	.388
Innovation	0.229	0.229	0.247 0.83434	8.290	.005
Risk	0.277	0.277	0.308 0.80694	12.474	.001
Achievement	0.423	0.423	0.283 0.86750	11.375	.001

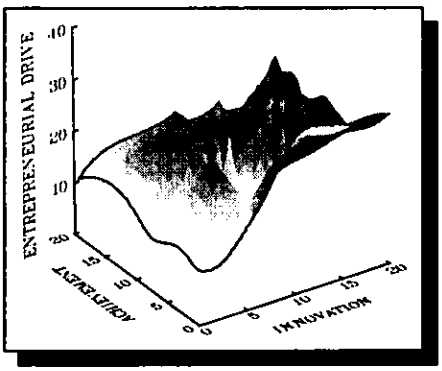
In developing any model, it is a valuable exercise to visualize the relationships being proposed. To that end, three dimensional plots of the independent variables against entrepreneurial drive were drawn. Since one cannot visualize in four dimensions, two sets of analyses were prepared to ensure that all three independent variables were included. To make the data points in three dimensional space more comprehensible, a surface displaying the interaction was constructed.

The first construction featured negative exponential smoothing which produces a three dimensional topographical map (Wilkenson, 1990). The results, displayed to the right, contrast risk taking and innovation against entrepreneurial drive. Shading proceeds from lighter shades at lower levels to progressively darker shades at

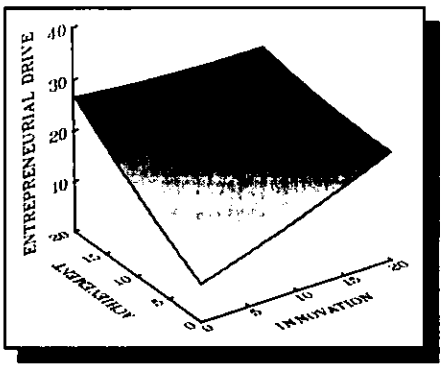




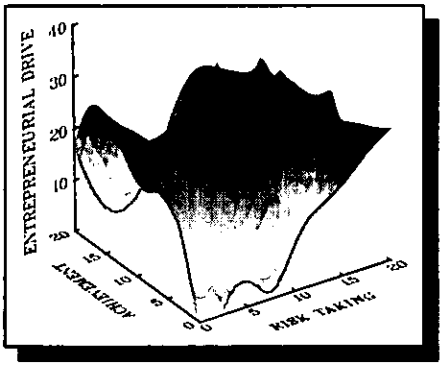
higher levels. The surface suggests that higher levels of risk combined with higher levels of innovation produce higher levels of entrepreneurial drive. The overall shape of the surface suggests that, although the relationships are not perfect, they generally move in the right directions. A second graph, employing a quadratic smoothing technique, is displayed to the left. This technique smooths the data into a much flatter surface (Wilkenson, 1990), making the relationships easier to examine visually. This graph shows a remarkably well established relationship.



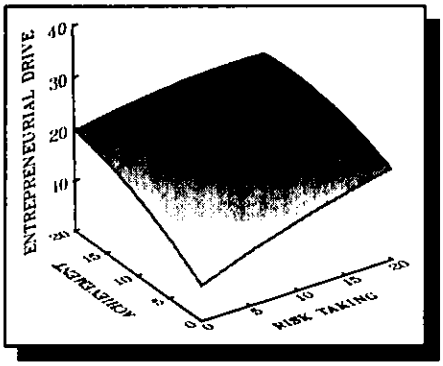
The visual analysis continued, substituting achievement for risk taking in the graph. Using negative exponential smoothing, the resulting surface, shown in the graph to the right, is not as well developed as the earlier display.



The surface climbs appropriately, but its shape is more rugged. When quadratic smoothing is applied, the result is much more pleasing. The left graph displays the resulting surface. This surface climbs appropriately to support the existence of a model.



To complete visual analysis, one must contrast achievement and risk against entrepreneurial drive.



The right graph displays negative exponential smoothing, while the left displays quadratic smoothing. The first surface is the most rugged yet, but the left supports the model.

The foregoing visualization suggests that a model of entrepreneurial drive based on achievement, innovation, and risk is a viable prospect. To proceed with construction of the model, the results of the stepwise regression were tested with an analysis of variance on the final regression model. The results, displayed below, show a high probability of the existence

of a relationship and the R^2 shows that the model explains 39% of the variance in the CEI score. Further, the individual t tests show that every independent variable is significantly related to the dependent variable.

REGRESSION ANALYSIS					
N=105	Dependent Variable: Entrepreneurial Drive			R Square: 0.388	
Variable	Coefficient	Std Error	Coef Tolerance	T	p
Constant	9.651	1.493	0.000 .	6.466	.000
Innovation	0.229	0.229	0.247 0.83434	2.879	.005
Risk	0.277	0.277	0.308 0.80694	3.532	.001
Achievement	0.423	0.423	0.283 0.86750	3.373	.001

ANALYSIS OF VARIANCE					
Source	Sum of Squares	DF	Mean Square	F Ratio	p
Regression	854.535	3	284.845	21.089	.000
Residual	1350.686	100	13.507		

The levels of correlation between the independent variables which were discovered by the Pearson correlation suggest that there may be multicollinearity in the model. Consequently, the independent variables were collapsed into a single number by adding the individual scores together, and another analysis was conducted. This process allows one to remove any multicollinearity. The results of this regression are shown in the following exhibit.

REGRESSION ANALYSIS					
N=105	Dependent Variable: Entrepreneurship Drive			R Square: 0.378	
Variable	Coefficient	Std Error	Coef Tolerance	T	p
Constant	10.316	1.331	0.000 .	7.452	.000
Inn+Risk+Ach	0.286	0.036	0.615 .100E+01	7.880	.000

ANALYSIS OF VARIANCE					
Source	Sum of Squares	DF	Mean Square	F Ratio	p
Regression	834.493	1	834.493	62.097	.000
Residual	1370.729	102	13.439		

As the exhibit reveals, the new regression has a virtually identical R^2, but the F ratio for the entire model is much higher, almost three times as high, as for the earlier regression. Further, the t statistic for the combined variable is also much higher, twice as high, as the highest t statistic produced in the previous regression. If multicollinearity exists in the model, it does not affect the validity of the model, nor does it reduce the proportion of variance which the model explains.

Of course, the model is not without problems. First, the R^2 of the model leaves a great deal of variance in the dependent variable unexplained. Earlier investigations into the diversity of the data set demonstrated that other factors influence entrepreneurial drive. Graduate students in this study displayed higher entrepreneurial drives than undergraduates. That may have been a function of a higher level of self confidence or some other, unknown reason. Males displayed higher entrepreneurial drive, higher preference for innovation, and higher risk taking propensity than females. That may result from cultural or other factors, but it does suggest that sex will play a role in the entrepreneurship model. There may be other limiting factors in the efficacy of this model. Among these are measurement problems relating to the appropriateness of entrepreneurial drive as a proxy for potential entrepreneurship.

CONCLUSIONS AND IMPLICATIONS OF THE RESEARCH

In conclusion, the model of potential entrepreneurship developed in this paper paints a valid and useful portrait of the student participants. That model can be expressed as follows:

Potential Entrepreneurship = f(Achievement, Innovation, Risk Taking)

The findings of this study are not generalizable to the greater population of potential entrepreneurs due to sample size and potential sample bias. Nevertheless, the findings show an interesting relationship which merits further study.

Using the students in this study, the authors were able to construct a model of potential entrepreneurship which was simultaneously appealing from a classical perspective, from a visual perspective, and from a statistical perspective. This model suggests that potential entrepreneurship, as forecast by the strength of one's entrepreneurial drive, is a function of the interaction between the need for achievement, risk taking propensity and preference for innovation. All of these characteristics have strong appeal as classical descriptors of entrepreneurship and they performed well from a statistical and visual perspective.

If the results of this investigation are supported by future research, the findings will suggest that need for achievement is a necessary, but not a sufficient requirement to explain entrepreneurship. The same is true for preference for innovation and risk taking potential. In fact, there are other, as yet undisclosed, factors which are necessary but not sufficient in explaining potential entrepreneurship.

By far the most valuable implication of this finding has to do with entrepreneurship education. Entrepreneurship students must develop an intrinsic achievement motivation in order to do well. That is well known and is one of the underlying supports for the academic grading system. However, the idea that potential entrepreneurs may display a higher risk taking propensity suggests that educators need to incorporate risk taking into the entrepreneurship curriculum. A potential act of entrepreneurship does not guarantee success. If entrepreneurship students are more prone to risk taking behavior than their counterparts in other majors, we, as educators, must ensure that we impress upon them the need to carefully evaluate entrepreneurial actions. If we teach risk assessment and we emphasize the need for rational and calculated behavior, we may prevent a hasty and ill advised decision in the future.

Perhaps the most exciting aspect of the model derived in this study is the role of innovation. Entrepreneurship researchers have long recognized the role of innovation in entrepreneurs and entrepreneurial acts. This model suggests that the same role exists even in potential entrepreneurs. Further, as educators, we know that techniques for enhancing and cultivating one's creativity and innovative posture are well established. These techniques have been practiced in psychology and education for more than 30 years (i.e., Lowenfeld, 1958; Fromm, 1959; Maltzman, 1960; Hallman, 1963; Torrance, 1966; Torrance & Myers, 1970; Parnes, 1982). Clearly, we need to incorporate creativity into the entrepreneurship curriculum.

We can design educational experiences which will help to protect our potential entrepreneurs from their risk taking propensities. We can also design educational experiences which will help them to enhance their individual creativity. As entrepreneurship educators, we need to invest the time and energy in a personal program of study which will help us to design and implement both types of educational experiences. The former can help protect our students from failure; the latter can help propel our students to success.

REFERENCES

Barbato, R.J. & Durlabhji, S. (1989). Budding entrepreneurs: Business student and dislocated workers, *Journal of Business and Entrepreneurship, 1(1)*, March, 49-57.

Birley, S., Gross, C. & Saunders, P. (1986). The differences between small firms started by male and female entrepreneurs who attended small business courses. *Frontiers of Small Business Proceedings*, 211-222.

Brockhaus, R.H. (1982). Psychology of the Entrepreneur. In Kent, Sexton, Vesper (Eds.), *Encyclopedia of Entrepreneurship.* Englewood Cliffs, NJ: Prentice Hall.

Bruning, J.L. & Kintz, B.L. (1987). *Computational Handbook of Statistics.* Glenview, IL: Scott, Foresman and Company.

Carland, J.W., Carland, J.A., & Dye, J.L. (1991). Profiles of new venturists and corporate managers: Is there a difference? *Proceedings of the United States Association of Small Business and Entrepreneurship,* Madison, WI: USASBE, 48-57.

Carland, J.W., Carland, J.A., & Hoy, F. (1992). An entrepreneurship index: An empirical validation, Presented to the Babson Entrepreneurship Conference, Fontainebleau, France, June.

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

Carland, J.W., Hoy, F. & Carland, J.A. (1988). 'Who is an entrepreneur?' is a question worth asking. *American Journal of Small Business, 12(4),* Spring, 33-39.

Drucker, P. (1985). *Innovation and Entrepreneurship.* New York, NY: Harper & Row.

Ely, R.T. (1912). *Outline of Economics* (Revised Edition). New York, NY: MacMillan.

Fromm, E. (1959). The creative attitude. In (Ed. H.A. Anderson) *Creativity and its Cultivation.* New York: Harper Brothers.

Gartner, W.B. (1988). 'Who is an entrepreneur?' is the wrong question. *American Journal of Small Business, 12(4),* 11-32.

Gatewood, E.J., Shaver, K.G., & Gartner, W.B. (1992). Cognitive factors in entrepreneurial persistence. Presented to the Babson Entrepreneurship Conference, Fontainebleau, June.

Hallman, R.J. (1963). The necessary and sufficient conditions of creativity, *Journal of Humanistic Psychology, 3(1),* Spring.

Hills, G.E. & Welsch, H. (1986). Entrepreneurship behavioral intentions and student independence, characteristics and experiences. In Ronstadt, R., Hornaday, J., Peterson, R., Vesper, K. (Eds.), *Frontiers of Entrepreneurship Research,* Wellesley, MA: Babson Center for Entrepreneurial Studies, 173-186.

Hoy, F. & Boulton, W. R. (1983). Problem-solving of students--Are educators producing what business needs? *Collegiate News and Views, 36(3),* 15-21.

Jackson, D.N. (1974). *Personality Research Form Manual.* Goshen, NY: Research Psychologists Press.

Jackson, D.N. (1976). *Personality Inventory Manual.* Goshen, NY: Research Psychologists Press.

Jackson, D.N. & S.M. Guthrie (1968). A multi-trait evaluation of the personality research form. *Proceedings,* American Psychology Association.

Kilby, P. (1971). *Entrepreneurship and Economic Development.* New York, NY: The Free Press.

Lowenfeld, V. (1958). Current research on creativity, *Journal of the National Educational Association, 47,* 538-540.

Maltzman, I. (1960). On the training of originality, *Psychological Review, 67,* 229-242.

McClelland, D.C. (1961). *The Achieving Society.* Princeton, NJ: Van Nostrand.

Mill, J.S. (1848). *Principles of Political Economy.* London, England: John W. Parker.

Miller, A. (1987). New ventures: A fresh emphasis on entrepreneurial education. *Survey of Business, 23(1),* Summer.

Parnes, S.J. (1982). Can creativity be increased? In (Eds. Parnes and Harding), *A Source Book for Creative Thinking,* New York: Charles Scribner's Sons, 185-192.

Robinson, P.B., Huefner, J.C., & Hunt, H.K., (1991). Entrepreneurial research on student subjects does not generalize to real world entrepreneurs, *Journal of Small Business Management, 29(2),* January, 42-50.

Sexton, D.L. & Bowman, N.C. (1983). Comparative entrepreneurial characteristics of students: Preliminary results. In Hornaday, J., Timmons, J. & Vesper, K. (Eds.), *Frontiers of Entrepreneurship Research,* Wellesley, MA: Babson Center for Entrepreneurial Studies, 213-232.

Sexton, D.L. & Bowman, N.C. (1984). Personality inventory for potential entrepreneurs: Evaluation of a modified, JPI/PRF-E instrument. In Hornaday, J., Tarpley, F., Timmons, J. & Vesper, K. (Eds.), *Frontiers of Entrepreneurship Research,* Wellesley, MA: Babson Center for Entrepreneurial Studies, 513-523.

Sexton, D.L. & Bowman, N.C. (1986). Validation of personality index: Comparative psychological analysis of female entrepreneurs, managers, entrepreneurship students and business students. In Ronstadt, R., Hornaday, J., Peterson, R., Vesper, K. (Eds.), *Frontiers of Entrepreneurship Research,* Wellesley, MA: Babson Center for Entrepreneurial Studies, 40-51.

Schumpeter, J.A. (1934). *The Theory of Economic Development.* Cambridge, MA: Harvard University Press.

Solomon, G.T. & Fernald, L.W. (1990). A comparative analysis of entrepreneur and college business student values. *The Journal of Creative Behavior, 24(4),* 238-255.

Stewart, H.W., Carland, J.A. and Carland, J.W. (1996). Empirically defining the entrepreneur, *Journal of Business and Entrepreneurship, 8(1),* March, 1-18.

Torrance, E.P. (1966). *Torrance Tests of Creative Thinking Norms-Technical Manual* (research ed.) Princeton, NJ: Personnel Press.

Torrance, E.P. & Myers, R.E. (1970). *Creative Learning and Teaching.* New York: Harper & Row, Publishers.

Vesper, K.H. (1990). *New Venture Strategies,* Revised Edition, Englewood Cliffs: Prentice-Hall.

Wilkinson, L. (1990). *SYSTAT.* Evanston, IL: Systat Inc.