Volume 8, Number 2 **ISSN 1528-2686**

ACADEMY OF ENTREPRENEURSHIP JOURNAL

An official Journal of the

Academy of Entrepreneurship ®, Inc.

JoAnn C. Carland, Editor
Western Carolina University

Academy Information
is published on the Allied Academies web page
www.alliedacademies.org

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Whitney Press, Inc.

Printed by Whitney Press, Inc.
PO Box 1064, Cullowhee, NC 28723
www.whitneypress.com

The *Academy of Entrepreneurship Journal* is owned by the Academy of Entrepreneurship, Inc., and published by the Allied Academies, Inc., PO Box 2689, 145 Travis Road, Cullowhee, NC 28723, USA, (828) 293-9151, FAX (828) 293-9407. Those interested in subscribing to the *Journal*, advertising in the *Journal*, or otherwise communicating with the *Journal*, should contact the Executive Director at info@alliedacademies.org.

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MANUSCRIPTS

THE TRAINING NEEDS OF FEMALE ENTREPRENEURS

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ABSTRACT

This study investigated the training/consulting needs of entrepreneurs, looking in particular at how the training needs of female entrepreneurs may differ from those of male entrepreneurs. A statewide mail survey was used to collect importance scores on 23 training/consulting areas. The importance scores on training/consulting needs for the total sample revealed that the areas of Complying With Regulations And Taxes (the highest rating) followed by Cash Flow Management, Accounting/bookkeeping, Financial Relationships, then Advertising, Marketing, and Sales had the highest importance ratings. Recommendations on the use of the overall sample's importance scores are presented. Significant differences were found for seven of the 23 areas tested between males and female business owners. The female entrepreneurs had significantly higher scores on the training/consulting areas of Feasibility Analysis, Strategic Planning, Financial Relationships, Obtaining Business Licenses, Initial Processes and Procedures, Advertising and Government Procurement. Further analyses were performed to explore these findings. In additional significance tests conducted using a sub-sample of males and females matched on age, type of business, number of full time employees and age of business; no differences were found. The implications of these findings are discussed along with suggestions for future research.

INTRODUCTION[1]

In the last three decades, the growth of women-owned businesses in the United States has been phenomenal. The cultural trend of a strong desire for more independence by women combined with an increasing awareness of opportunities and political support has resulted in an escalating number of women-owned businesses. Females have increased their share of business ownership from 5 percent in 1972 to 34 percent in 1992 (Bureau of Census, 1976; 1996). In the same time period, the percentage of total sales attributable to women-owned businesses has soared from less than one percent to nearly 20 percent. The percentage of total sales is lower than the percentage of women-owned businesses because female entrepreneurs are concentrated in small service and retail businesses. The percentage of women-owned businesses has continued to grow, to 38 percent in 1999 as reported by the National Foundation of Women-Owned Businesses (cited in Bernstel, 2000). The percentage of total sales is also expected to grow as more women aspire to business ownership in industrial sectors. In an area where the situation is changing so dramatically there is a need for current information.

The growth in women-owned businesses is not limited to the United States. Female business owners are an international trend. Accountancy Age (2001) reported that one in three start-up businesses in Great Britain are run by women. Maysami & Goby (1999) documented the importance of female business owners in the economic growth in Singapore. This paper adds to the information on this major national and international trend by evaluating the training/consulting needs of women entrepreneurs.

BACKGROUND LITERATURE

First general background literature on female entrepreneurs will be summarized. Next studies comparing the financial concerns of male and female business owners are discussed. Then, studies on the training/consulting needs of women entrepreneurs will be reviewed.

As females migrated to ownership status, there was a concurrent increase in research on women-owned businesses. Several studies reported problems and concerns female entrepreneurs faced in starting and running a business (Aldrich, 1989; Brophy, 1989; Brush, 1989; Davis & Long, 1999; Hisrich, 1989; Hisrich & Brush, 1983, 1984, 1987; Nelson, 1987; Pellegrino & Reece, 1982). Two major areas of interest grew: the financial relationships of female entrepreneurs and the related training/consulting needs of female entrepreneurs. Several of these studies had conclusions containing suggestions on what needed to be done to create a better environment for female entrepreneurs. The results from these studies combined with the national strategy of enhancing economic growth by encouraging entrepreneurship was used as a rationale for allocation of government funding and influence. More specifically, financial institutions were questioned about their treatment of women loan applicants. Some advocates suggested government oversight was needed. Small Business Development Centers (SBDC) were challenged about the ability of their training/consulting to meet the needs of women. Special SBDC services and centers for women were suggested. However, the conclusions from these studies could be strongly challenged. Many of the first group of studies used only a sample of female business-owners. Because the first wave of studies looked only at women, the study design was flawed. The researchers didn't investigate the possibility that the problems faced by women in new business ventures are the same as problems faced by men in new ventures or the relative importance of the problems for men and women entrepreneurs. This flawed design could result in misleading conclusions. For example, if the problems are the same, there is no need for the expense of separate services. Additional work is needed on this important question.

The concerns about the first wave of research investigating female entrepreneurs led to a second group of studies that had more scientific rigor and better survey methodology. Coleman (2000), Haynes and Haynes (1999), and McKechnie, Ennew and Read (1989) explored the financial relationships of male and female entrepreneurs. Sexton and Bowman-Upton (1990) investigated psychological characteristics of males and female entrepreneurs. Chrisman, Carsrud, DeCastro and Herron, (1990) studied training/consulting needs of a SBDC. These studies have found little, if any differences between the problems faced by men and women entrepreneurs. The general finding is that being an entrepreneur is very difficult regardless of gender. These divergent findings call for

more consideration of this area. Next the studies on the financial needs of entrepreneurs will be reviewed, then the studies on training/consulting needs will be addressed.

Financial Needs

Problems in dealing with bankers are a repeated theme in past literature on female entrepreneurs (Hisrich & Brush, 1987; The National Foundation of Women Business Owners, 1993). At first reflection, it appears that the bankers may be losing out on a great opportunity to finance a rapidly growing segment of business owners. But a review of the supporting documentation in these studies indicates an over-reliance on perceptual and anecdotal data (that are often subjective). Furthermore, since the studies are based on female-only samples, it is not possible to separate the specific problems of women from those faced by all entrepreneurs.

In a well-constructed study, McKechnie, Ennew and Read (1998) compared the banking relationships of male and female entrepreneurs. Although the profiles were generally similar, the interesting finding was that the female entrepreneurs perceived the bank managers as more approachable. On average both genders agreed that bankers did not understand the small business environment. There was no quantitative evidence that female business owners had a poorer banking relationship. The general direction of these findings was supported by a study on the access to capital and terms of credit by Coleman (2000). She used a database of 4,500 respondents and did not discover any difference between the treatment of male and female entrepreneurs by lenders. This finding differed from earlier studies (Brophy, 1989; Brush, 1992; Hisrich, 1989), which had used smaller and more limited samples. The different conclusion again supports the need for large and general samples.

In a third well-designed study, Haynes and Haynes (1999) used a large national sample of 2,284 respondents with comparative data on male- and female- business owners. The authors concluded that women-owned businesses have similar access to lines-of-credit as men-owned businesses do. The overall conclusion from the second wave of research is that there are few, if any differences, in banking relationships for male and female entrepreneurs.

In addition to the better samples and research designs, another reason for the difference in the findings between the two waves of research could be that, with the rapid growth of women-owned businesses, female entrepreneurs have become more common and more accepted in the business community. The very number of women entrepreneurs should make it apparent to lending institutions and others that discrimination against this segment of the business community will result in financial losses.

Training/Consulting Needs

The training/consulting needs of potential entrepreneurs are an important area for educators, consultants, members of enabling groups (such as financial institutions), and Small Business Development Centers. Many studies have been published related to the entrepreneurial profiles and the associated training/consulting needs of male and female entrepreneurs (Carter, 1989; Hisrich, 1989; Hisrich & Brush, 1983; 1984; 1985; Nelson, 1987; Pellegrino & Reece, 1982). In general,

the findings have been that female entrepreneurs had different training/consulting needs. However, these studies focused on female entrepreneurs and had small sample sizes. Carter (1989) used a sample of 70 female business owners to define different types of entrepreneurs. She suggested that any formal training/consulting assistance consider the different types of entrepreneurs. Hisrich and Brush (1983; 1984) reported on findings from a sample of 468 women entrepreneurs. The findings identified some areas of assistance (i.e. training/consulting areas) that could be helpful for female entrepreneurs and the need to encourage women to earn degrees in areas dominated by males. In 1987, Hisrich and Brush documented a longitudinal study of 143 female business owners (out of the 468 respondents reported earlier). Among other conclusions, they suggested the women entrepreneurs hire experts and take classes to improve their chances of starting a successful business. In 1987 Nelson discussed the information needs of 50 female entrepreneurs dealing with specific categories for starting and maintaining a business that are common training/consulting areas. Pellegrino & Reece (1982) reported on the formation and operational problems (using common training/consulting areas for small business start-ups) of 20 female entrepreneurs. All of these studies in some form contain information dealing with the training/consulting needs of female business owners. However, many of these studies had small sample sizes that made the findings difficult to project to a larger population (Cater, 1989, n=70; Nelson, 1987, n= 50; Pellegrino & Reece, 1982, n = 20). All of the studies just focused on female entrepreneurs (Cater, 1989; Hisrich & Brush, 1983; 1984; 1987; Nelson, 1987; Pellegrino & Reece, 1982). The pioneering researchers did not miss this fact. As Pellegrino and Reece (1982, page 6) noted: "It is also recommended that a comparative study featuring a comparable population of males and females be conducted".

Chrisman, Carsrud, DeCastro and Herron conducted a more comprehensive study (1990), on the assistance (training/consulting) needs of male and female pre-venture entrepreneurs. Their sample was based on SBDC clients from one state and consisted of 162 respondents. The Chrisman et al. (1990) study measured the amount of assistance received by the gender groups for three broad classifications: Strategic Assistance, Administrative Assistance, and Operational Assistance. The findings support the view that the male and female Small Business Development Center clients received almost identical levels of assistance.

Although the actual assistance is of great interest, a rating of the importance of a training/consulting area is also of great interest. Actual assistance measures what the pre-venture business owner received, whereas the importance rating measures the value the entrepreneur placed on the area. How important the entrepreneurs perceive a given training/consulting area can be an aid in setting policy, developing programs and structuring course content. Chrisman et al. (1990) measured 12 specific categories of assistance within the three broad measures of assistance (Strategic, Administrative, and Operational). More measures of different training/consulting content areas would be helpful. For example, Chrisman et al asked about marketing assistance when the training/consulting area could have been divided into marketing, advertising and sales. Additional measures are necessary because other areas of interest such as technology, e-commerce and government regulations have emerged as significant in training/consulting. The Chrisman et al. (1990) study is limited to one state and a reasonable sample size (n = 162). The use of a larger sample in another state would substantiate and extend their results.

RESEARCH DESIGN

This study extends past work by investigating the importance that entrepreneurs place on training/consulting areas. Given the changing nature of the business landscape, current studies are necessary to investigate the impact of such changes. A database, which includes both male and female entrepreneurs, allows for a comparison of needs. A final sample of over 600 respondents from one state was collected so that the results can be generalized with confidence. Two different sources of lists were used to generate the initial sample of 4000. Past SBDC clients were used to randomly select a list of 3000 potential respondents. A list of small business owners was purchased from a national list broker to obtain a sample of potential respondents who were not SBDC clients. The members of the lists were all people who had been identified as potential or current small business owners. The respondents fell into a general definition of entrepreneurs. One limitation of this study (shared with much of the prior research) is that the definition of entrepreneur is not tight. In this case, the limitation is a result of the ability to identify these people with a finer level of precision for data collection.

The next step was to identify the training/consulting areas of interest to entrepreneurs. Several meetings were held with small business consultants to list the different areas of interest. Then, separate focus groups were conducted for each gender (with the participants and moderator of the same gender). In these groups, the training/consulting areas from the consultants were loosely used as general discussion topics. Probing was used to generate additional topics. Finally, the information from the small business experts and the focus group participants were combined to create a list of topics for investigation. In order to organize the training/consulting areas on the questionnaire, they were divided into three general categories of needs: General Background, Organization Processes and General (business) Activities. When the various areas of training/consulting were developed from prior research, expert opinion and the focus groups, the number of areas was too large to list in one question and have a pleasing design. It was decided to group the areas into the three general categories mentioned above for the convenience of the respondents and the ease of dealing with the questionnaire material (see Table 1).

A questionnaire was developed and pre-tested. Respondents were asked to rate the importance of 23 training/consulting areas on a 7-point scale with 7 being the highest importance score. Postcards stressing the importance of the survey were sent as pre-notifications to each of the potential respondents. About two weeks later, the questionnaire was mailed to 4,000 potential respondents. Approximately 10 days later, a follow-up postcard was mailed to the non-respondents to encourage response. Finally, approximately 14 days later, the remaining non-respondents were mailed another questionnaire. The United States Post Office returned envelopes that could not be delivered. These returned envelopes were used to identify bad addresses, which were removed from the mailing lists. The revised sample size was 3,009.

Table 1: Total Sample Means, Ranks and Standard Deviations (The rankings are in parentheses)

For each of the following areas, please indicate how important it was to obtain assistance in starting your business on a 1 to 7 scale with 7 representing the greatest importance.

Training/consulting area	Mean	Standard Deviation
General Background:		
Feasibility analysis	4.64 (20)	2.17
Competitive analysis	4.75 (16)	2.08
Strategic planning	5.16 (10)	2.01
Location decision	4.74 (17)	2.23
Pro-forma financial analysis	4.79 (13)	2.09
Financial relationships	5.40 (4)	1.97
Loan application	4.86 (12)	2.30
Obtaining business licenses	4.74 (17)	2.31
Organization Processes:		
Initial processes and procedures	5.35 (6)	1.91
Cash flow management	5.60 (2)	1.88
Accounts receivable management	5.27 (9)	1.98
Accounting/bookkeeping	5.55 (3)	1.85
Production processes	4.62 (22)	2.16
Inventory control	4.63 (21)	2.16
Purchasing	4.78 (14)	2.19
General Activities:		
Electronic commerce	4.20 (23)	2.18
Marketing	5.35 (6)	1.98
Advertising	5.36 (5)	1.96
Sales	5.29 (8)	2.05
Complying with regulations and taxes	5.72 (1)	1.78
Government procurement	4.69 (19)	2.26
Managing technology	4.77 (15)	2.11
Business performance measures	5.07 (11)	2.03

A total of 924 people responded yielding a response rate of 30%. Of the 924 people who responded, 298 had not filled out the questionnaire in sufficient detail or did not qualify for further analysis, so the effective sample size dropped to 626 or 21% of the revised list size. The sample size

and the response rate were deemed acceptable for further analysis. Seventy percent of the sample did not respond. An unknown number of non-responses were due to bad addresses in the two source lists. Some of the names and addresses in the Small Business Development Center list went back several years, increasing the possibility of an inaccurate address. It was hard to determine the validity of the purchased list. No research was done on the difference between respondents and non-respondents. Overall the sample is of reasonable size (626 responses) and comparable or better than prior samples in this area.

DATA ANALYSIS

Each response was reviewed, entered into a computer software program, verified, and then analyzed using a statistical software program. The mean rating and standard deviation of the importance scores for each of the training/consulting areas are presented in Table 1. Overall the respondents rated Complying With Regulations And Taxes as the most important training area with a mean of 5.72 and rated Electronic Commerce as the least important (mean of 4.20). The range of the means was 1.52 scale points with a mean of the means of 5.01. For the General Background needs, Financial Relationships and Strategic Planning received the highest ratings from the total sample, with means ratings of 5.40 and 5.16, respectively. For Organization Processes, Cash Flow Management and Accounting/bookkeeping received the highest ratings, with mean ratings of 5.60 and 5.55, respectively. Finally, for General Activities, Complying With Regulations And Taxes, Marketing, Advertising, and Sales received the highest mean ratings with scores of 5.72, 5.35, 5.36, and 5.29, respectively.

The total sample data indicated that Compliance With Regulations And Taxes is the most important single issue for entrepreneurs. This area is the one that should be allocated the most resources for the training and consulting of entrepreneurs. Similarly, this training area should be the most up-to-date and investments should be made to insure it is the most effective. This material should be enhanced to insure the highest quality training/consulting. Further research may be necessary to better define the reasons why the entrepreneurs thought this area was the most important for training/consulting. This finding supports the often-echoed concern of over-regulation and complicated tax forms and regulations. The second and third highest rated concerns, Cash Flow Management and Accounting/bookkeeping, reflect the needs for managing funds and the difficulty of small business owners in doing the necessary paperwork. Financial Relationships have the fourth highest rating and are logically tied to Cash Flow Management. Closely following are Initial Processes and Procedures, Marketing, Advertising and Sales demonstrating the need for processes to implement a business idea and marketing efforts to identify and attract customers. Interestingly the importance rating for training/consulting on Electronic Commerce had the lowest rating of any of the training/consulting areas.

Next, the sample was divided into male and female groups and tested for statistical differences between the groups. When the overall sample was divided by gender, 288 females and 333 males had usable responses. The combined sample size of the male and female groups is 621, which is slightly less than the total number of respondents of 626 since some respondents did not

indicate gender. The means, standard deviations and ranks of the items of interest by gender are presented in Table 2.

Table 2: Means, Ranks and Standard Deviations for the Female and Male Groups (The rankings are in parentheses).

	Females		Males	
Training/consulting area	Mean	Standard Deviation	Mean	Standard Deviation
General Background:				
Feasibility analysis *	4.94 (17)	2.14	4.37 (22)	2.17
Competitive analysis	4.97 (16)	2.07	4.55 (17)	2.07
Strategic planning*	5.42 (8)	1.95	4.92 (10)	2.04
Location decision	4.90 (18)	2.22	4.59 (15)	2.22
Pro-forma financial analysis	4.90 (18)	2.16	4.69 (13)	2.05
Financial relationships*	5.62 (6)	1.88	5.18 (6)	2.03
Loan application	5.09 (12)	2.26	4.63 (14)	2.33
Obtaining business licenses*	5.01 (14)	2.31	4.45 (20)	2.29
Organization Processes:				
Initial processes and procedures*	5.75 (2)	1.79	4.98 (9)	1.93
Cash flow management	5.75 (2)	1.79	5.46 (2)	1.95
Accounts receivable management	5.37 (9)	2.01	5.18 (6)	1.96
Accounting/bookkeeping	5.69 (4)	1.82	5.42 (3)	1.88
Production processes	4.76 (22)	2.18	4.52 (18)	2.14
Inventory control	4.78 (21)	2.24	4.51 (19)	2.17
Purchasing	4.80 (20)	2.26	4.74 (12)	2.13
General Activities:				
Electronic commerce	4.41 (23)	2.27	4.05 (23)	2.09
Marketing	5.53 (7)	1.96	5.19 (5)	1.99
Advertising*	5.63 (5)	1.83	5.11 (8)	2.03
Sales	5.29 (10)	2.13	5.28 (4)	1.97
Complying with regulations & taxes	5.86 (1)	1.76	5.59 (1)	1.79
Government procurement*	5.04 (13)	2.21	4.40 (21)	2.26
Managing technology	5.00 (15)	2.13	4.58 (16)	2.08
Business performance measures	5.27 (11)	2.01	4.89 (11)	2.14

* Significantly different between the two groups at the 0.01 level.

The researchers ranked mean importance-rating scores for each training/consulting area for the male and female groups (see Table 2). These rankings can be used to help analyze the significant differences noted below. When scanning the ranks of the importance scores for the two groups, some similarities are noted. The ranking for both groups had the training/consulting area of Complying With Regulations And Taxes as the most important area (ranked #1). The mean importance score of the training/consulting area of Electronic Commerce was the lowest of the 23 importance scores measured and therefore the area was ranked at the bottom (#23) by the researchers. Cash Flow Management was the number two-ranked training/consulting area for the male group and this same area shared the second place ranking with Initial Processes and Procedures for the female group.

To consider which of the mean differences are meaningful, statistical tests were run comparing the group means. For the 23 training/consulting areas, seven were found to be significant at the 0.01 level: Feasibility Analysis, Strategic Planning, Financial Relationships, Obtaining Business Licenses, Initial Processes and Procedures, Advertising, and Government Procurement (see Table 3). The significant differences indicate that the female respondents rated these training/consulting areas as more important than the male respondents. In practical terms, if both groups ranked a training/consulting area the same, then even if the group means were significantly different, both areas have the same level of relative importance for the groups. For example, the significantly different ratings on Financial Relationships in the General Background category has little practical significance since this training/consulting area was ranked as number six (of 23) for both groups (when the ratings of the female and male business owners were ranked within the category). For Feasibility Analysis, the rank was 17th for the females and 22nd for the males indicating a pragmatic difference but in the lower end of the importance scores. For Strategic Planning the significant difference was associated with ranks of 8th and 10th for the females and males groups respectively. For this significance difference, the similar ranks indicate the training/consulting area is important for both groups. Obtaining Business Licenses important scores were ranked 14th for the females and 20th for the males. This wide difference in the ranks would make this area a good choice for future research. The reasons why the groups rated this training/consulting area different should be probed. Consideration of possible changes in the method of training delivery and content could be explored. Initial Processes and Procedures were ranked 2nd within the females group but 9th by the male group. This training/consulting area had the largest substantial relative difference of any of the highly ranked training/consulting areas. Clearly in terms of further research and development, Initial Processes and Procedures should receive top priority. The question of why there are differences and how to effectively address training needs are excellent topics for future research. Advertising is another training/consulting area that has a significant difference in the ratings and a reasonable difference in the ranks of the importance ratings. For the women entrepreneurs Advertising was ranked 5th and for the men entrepreneurs, Advertising was ranked 8th. This training/consulting area is another good choice for future research to answer why there are differences and how to effectively address training needs. The last significantly different area- Government Procurement had substantially different rankings of the importance scores (13th for females and 20th for males). This content area would be another good topic for future research.

Table 3: Significantly Different Means and Ranks for the Female and Male Groups (The rankings are in parentheses).		
	Females Mean	Males Mean
General Background:		
Feasibility analysis *	4.94 (17)	4.37 (22)
Strategic planning*	5.42 (8)	4.92 (10)
Financial relationships*	5.62 (6)	5.18 (6)
Obtaining business licenses*	5.01 (14)	4.45 (20)
Organization Processes:		
Initial processes and procedures*	5.75 (2)	4.98 (9)
General Activities:		
Advertising*	5.63 (5)	5.11 (8)
Government procurement*	5.04 (13)	4.40 (21)
* Significantly different between the two groups at the 0.01 level		

CONCLUSIONS AND IMPLICATIONS

A careful review of the statistical data reveals several interesting findings. First, the total sample ratings of the 23 training/consulting topics showed that the areas of Complying With Regulations And Taxes (the highest rating) followed by Cash Flow Management, Accounting/bookkeeping, Financial Relationships, Advertising, Marketing, and Sales had the highest importance ratings among entrepreneurs. These importance scores can be used to allocate resources for training and development and in strategic planning. The topics with the highest ratings could be given priority in resource allocation for training and development. A strategic planning process can also be implemented. For example, the topics can be divided into high and low categories based upon the importance scores. Then the topics can be divided into high and low categories based upon the required resources to substantially enhance and improve the training/consulting areas. The categories on the two dimensions can be arranged to create a 2x2 matrix. Then, each training/consulting area is placed in a cell in the matrix. An analysis of the matrix can be used to plan strategies and allocate funds.

Second, when the group means on the importance of training/consulting areas for female and male entrepreneurs were tested seven topics were found to be significantly different: Feasibility Analysis, Strategic Planning, Financial Relationships, Obtaining Business Licenses, Initial Processes and Procedures, Advertising and Government Procurement. A further analysis of these differences using a ranking of the mean ratings within groups was used to identify the most important training/consulting areas for future research. It was found that Initial Processes and Procedures, Advertising, Obtaining Business Licenses and Government Procurement were excellent candidates for further investigations. Strategic Planning and Feasibility Analyses are second tier considerations

for future research since the rankings of the important scores were lower/or had less difference in the ranks. Financial Relationships had the same rank for both groups and as a result, the training/consulting implications are similar. These significant findings define the areas where future research should begin to probe to explain why the differences exist.

Table 4: The Questions Used To Match The Sample Members

Please indicate how long your business (the business that you own and operate) has been in existence. ___Less than 1 year ___1 year or more but less than 2 years ___2 years or more but less than 5 years ___5 years or more
What type of business do you have? ___ Retail ___ Service ___ Wholesale ___ Manufacturing ___ Construction
How many employees do you currently have? Number of Full Time Employees __ 1 to 5 __ 6 to 10 __ 11-25 __ 26-50 __ 51 to 100 __ 101 to 500 __ or more
Your age __ Less than 25 __ 25 or older but less than 35 __ 35 or older but less than 45 __ 45 or older but less than 55 __ 55 or older but less than 65 __ 65 or older

Frequently, prior research has investigated the needs of female entrepreneurs and suggested major changes based upon a profile of their needs (Hisrich & Brush 1983, 1984, 1987; Nelson, 1987; Pellegrino & Reece, 1982). These findings are stronger since they are based on a comparison of female and male entrepreneurs and a sample size of over 600. Yet to be able to predict any changes that are appropriate a further analysis needs to be tabulated. The members of the sample need to be paired not only on gender but also on age, age of business, number of full time employees, and type of business. The wording of the questions used to collect this data is shown in Table 4.

Table 5: Means, Ranks and Standard Deviations For The Paired Female and Male Groups (The rankings are in parentheses) n= 122 for each group.

	Females		Males	
Training/consulting area	Mean	Standard Deviation	Mean	Standard Deviation
General Background:				
Feasibility analysis	4.59 (21)	2.27	4.06 (23)	2.27
Competitive analysis	4.75 (17)	2.18	4.39 (21)	2.12
Strategic planning	5.23 (9)	2.03	4.87 (11)	2.07
Location decision	4.85 (16)	2.21	4.60 (17)	2.27
Pro-forma Financial analysis	4.61 (19)	2.36	4.54 (19)	2.13
Financial relationships	5.52 (6)	2.11	5.28 (7)	1.97
Loan application	5.16 (12)	2.19	4.52 (20)	2.37
Obtaining business licenses	5.19 (11)	2.23	4.69 (15)	2.40
Organization Processes:				
Initial processes and procedures	5.51 (7)	1.98	5.10 (9)	1.96
Cash flow management	5.73 (2)	1.78	5.51 (3)	1.90
Accounts receivable Management	5.23 (9)	2.09	5.23 (8)	2.02
Accounting/bookkeeping	5.73 (2)	1.82	5.54 (2)	1.84
Production processes	4.69 (20)	2.26	4.66 (16)	2.17
Inventory control	4.54 (22)	2.32	4.70 (14)	2.17
Purchasing	4.70 (18)	2.27	4.83 (12)	2.05
General Activities:				
Electronic commerce	4.25 (23)	2.29	4.17 (22)	2.21
Marketing	5.70 (4)	1.82	5.36 (5)	1.94
Advertising	5.64 (5)	1.79	5.38 (4)	1.98
Sales	5.40 (8)	2.07	5.35 (6)	2.00
Complying with regulations & taxes	5.89 (1)	1.78	5.86 (1)	1.72
Government procurement	4.86 (15)	2.27	4.59 (18)	2.29
Managing technology	4.92 (14)	2.17	4.83 (12)	2.20
Business performance measures	5.14 (13)	2.10	5.09 (10)	2.05

Since there were fewer female respondents, they were used as the subjects to match with male respondents who shared the same ratings on the four additional variables of interest. Due to the inability to match many respondents, the sample size dropped to 122 pairs of males and females

(a loss of 377 subjects). Then additional significant tests were calculated. The means and standard deviations for both groups are presented in Table 5. Interestingly the number of significant differences (at the 0.01 level) dropped from seven to zero. The implications are that other demographic data related to small business owners may account for more variance than gender. This finding supports the findings of McKechnie, Ennew and Read (1998), Coleman (2000) and Haynes and Haynes (1999) of no difference between male and female entrepreneurs for another content area. This demonstration of a general analysis and a matched pair analysis resulting in different findings is significant in the planning and interpretation of research studies. Since no significant differences between male and female entrepreneurs from the matched sample were found, it implies that differences in variance are the result of other contributing factors and not gender. However the findings from just one study are not conclusive. The research needs to be replicated.

The understanding of the training/consulting needs of entrepreneurs has been furthered. The first wave of research has indicated that women entrepreneurs needed special services to facilitate business development. But the development of special services can be very expensive and to transfer limited resources from primary training/consulting program could weaken the whole program. A closer look revealed that these descriptive studies only used women and/or had relatively small samples. A second wave of research was conducted with larger samples consisting of both male and female business owners. The results indicated that for the specific situations studied, special services were not necessary. This study extends prior research by using a sample of 626 men and women entrepreneurs. The results indicated several similarities and seven significant differences out of 23 training/consulting areas for a non-matched sample. Insights into the differences of training/consulting needs of females and male business owners were discussed. When a matched sample was used, the situation was documented to be much more complex than previously found as no significant differences were found. As a result there is no strong evidence that special services are necessary for women. However, the discovery of differences does indicate the need to explore why they exist.

Additionally, a model for allocating resources based on the importance scores and the amount of resources needed to facilitate change was suggested. Therefore, the research findings can be used in a specific framework by the organizations that facilitate the business start-up process. These findings provide a framework for future research and managerial consideration.

ENDNOTE

1 This work was supported by the Appalachian Regional Commission and the U.S. Small Business Administration. This Cooperative Agreement is partially funded by the U.S. Small Business Administration. SBA's funding is not an endorsement of any products, opinions, or services. All SBA funded programs are extended to the public on a nondiscriminatory basis. SBDC programs are nondiscriminatory and available to individuals with disabilities.

REFERENCES

Accountancy Age (2001). Insight: women in business: women on top. (January 25) 18.

Aldrich, H (1989). Networking among women entrepreneurs. *Women-Owned Businesses*, Ed. Oliver Hagan, Carol Rivchun & Donald Sexton. New York: Praeger 103-132.

Bernstel, Janet (2000). The not-so-small business of women. *Bank Marketing*, 32 (5), 20-26.

Brophy, David (1989). Financing women-owned entrepreneurial firms. *Women-Owned Businesses*, Ed. Oliver Hagan, Carol Rivchun & Donald Sexton. New York: Praeger 55-76.

Brush, Candida (1991). Research on women business owners: past trends a new perspective and future direction. *Entrepreneurship Theory and Practice* (Summer) 5-30.

Bureau of Census (1976). *Women-Owned Businesses 1972*. U.S. Department of Commerce, Office of Minority Business Enterprise, Bureau of Census (March). Washington D. C.: U.S. Government Printing Office.

Bureau of Census (1996). *Women-Owned Businesses*. U.S. Department of Commerce, Economics and Statistics Administration, Bureau of Census (January). Washington D. C.: U.S. Government Printing Office.

Carter, S. (1989). The dynamics of performance of female-owned entrepreneurial firms in London, Glasgow and Nottingham. *Journal of Organizational Change Management*, 2 (3), 54-64.

Chrisman, James, Alan Carsrud, Julio DeCastro & Lanny Herron (1990). A comparison of assistance needs of male and female pre-venture entrepreneurs. *Journal of Business Venturing*, 5, 235-248.

Coleman, Susan (2000). Access to capital and terms of credit: a comparison of men-and women- owned small businesses. *Journal of Small Business Management*, 38 (3), 37-52.

Davis, Susan & Dinah Long (1999). Female entrepreneurs: what do they need? *Business Economic Review*, 45 (4), 25-26.

Haynes, George & Deborah Haynes (1999). The debt structure of small businesses owned by women in 1987 and 1993. *Journal of Small Business Management*, 37 (2), 1-19.

Hisrich, Robert (1989). Women entrepreneurs: problems and prescriptions for success in the future. *Women-Owned Businesses*, Eds. Oliver Hagan, Carol Rivchun & Donald Sexton. New York: Praeger. 3-32.

Hisrich, Robert & Candida Brush (1983). The women entrepreneur: implications for family education and occupational experience. *Frontiers of Entrepreneurship Research*, Eds. J. A. Hornaday, J. A. Timmons & K. H. Vesper Babson College, Wellesley, Maine. 255-270.

Hisrich, Robert & Candida Brush (1984). The women entrepreneur: management skills and business problems. *Journal of Small Business Management*, 22 (1), 30-37.

Hisrich, Robert & Candida Brush (1985). Women and minority entrepreneurs. *Frontiers of Entrepreneurship Research*, Eds. J. A. Hornaday, B. A. Kirchhoff, O. J. Krashner & K. H. Vesper Babson College, Wellesley, Maine. 566-587.

Hisrich, Robert & Candida Brush (1987). Women entrepreneurs, a longitudinal study. *Frontiers of Entrepreneurship Research*, Eds. N. D. Churchill, J. A. Hornaday, B. A. Kirchhoff, O. J. Krashner & K. H. Vesper Babson College, Wellesley, Maine. 187-199.

Maysami, Ramin Cooper & Valeria Priscilla Goby (1999). Female business owners in Singapore and elsewhere: a review of studies. *Journal of Small Business Management,* 37 (2), 96-105.

McKechnie, Sally, Christine Ennew & Lauren Read (1998). The nature of the banking relationship: a comparison of the experiences of male and female small business owners. *International Small Business Journal*, 16 (3), 39-55.

National Foundation of Women Business Owners (1993). *Financing the business: a report on financial issues for the 1992 biennial membership survey of women business owners, a research report by C. J. Olson Market Research. Minneapolis, Minnesota for the National* Foundation of Women Business Owners, Washington. D.C.

Nelson, G. (1987). Information needs of female entrepreneurs. *Journal of Small Business Management*, 25 (3), 38-44.

Pellegrino, E. & B. Reece (1982). Perceived formation and operational problems encountered by female entrepreneurs in retail and service firms. *Journal of Small Business Management*, 20 (2) 15-24.

Sexton, Donald & Nancy Bowman-Upton (1990). Female and male entrepreneurs: psychological characteristics and their role in gender-related discrimination. *Journal of Business Venturing*, 5 (1), 29-36.

WOMEN'S STATUS IN THE US WORKFORCE 2000+

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ABSTRACT

The purpose of the research was to explore the status of women in the US workforce including (1) a brief history of women's entrance into the workforce, (2) a comparison of men and women's pay, work positions, and promotion possibilities, (3) a review of women entrepreneurs, and (4) an examination of obstacles facing women in the workplace.

Historical highlights reveal women's entry into the workforce and US demographics and projections are used to bring attention to "perhaps the most significant change in the history of the American workplace—the gender shift;" women now make up 46 percent of US workers. Women are becoming better educated and single moms who serve as the head of households are fast becoming the new norm.

Although tremendous growth in numbers of women participating in the workforce is evident, equal treatment is not. Women continue to make 72.2 percent of the Caucasian male and fill only 6.2 percent of top management positions. Barriers such as stereotypical attitudes, "good ole boy networks", and the "glass ceiling" continue to stifle women's achievements and contributions to the corporate world.

As a result, many women are electing nontraditional careers such as engineering and science technicians, computer specialists, and starting their own businesses. Women have also invaded and proven themselves successful in traditional white male bastions—architects, economists, pharmacists, lawyers, and journalists.

INTRODUCTION

A plethora of articles has been published addressing the significant changes in US society and workforce demographics. Massive changes have been documented by the U.S. Census Bureau, (2000), indicating the change in Caucasian population in 1950 of 89 percent, to the predicted 60 percent of 2050, revealed in Table 1.

Each decade manifests a decline in numbers of Caucasians in the US population and increases in minority numbers, especially since the 1990s. A significant growth in the Hispanic population is forecast, from 6 percent in 1990 to 20 percent by 2050. Although the total percentage of Asian Americans is small, this demographic group is currently the fastest growing in the US (U.S. Census Bureau, 2000).

Table 1
US Ethnic Population and Estimates

Population	White	Black	Other		
1950	89%	10%	1%		
1960	88%	11%	1%		
1970	88%	11%	1%		
1980	80%	11%	Hispanic	Asian Pacific Islander	American Indian, Eskimo, Aleut
1990	77%	11%	6%	2%	1%
2000	74%	12%	8%	3%	1%
2010	70%	12%	10%	4%	----
2020	68%	12%	12%	5%	1%
2050	60%	12%	20%	7%	1%

Source: Population Estimates Program, Population Division, U.S. Census Bureau, Washington, D.C. Internet Release Date: August 25, 2000. Http://www.census.gov/population/estimates/nation/intfile3-1.

Additionally, as indicated in Table 2, the number of older workers is forecast to increase significantly, graying US society and the labor force. The percentage of the US population of 45-54 year olds is predicted to increase from 19 to 24 percent, and of 55-64 year olds from 9 to 12 percent, and will significantly impact organizations, insurance costs, and social security and medicare benefits. Perhaps, however, the greatest demographic shift is the influx of women into the workforce; their proportion is expected to increase from 46 to 48 percent by 2005.

In general, these demographic changes are already reflected in today's work environment, but the effect will continue to increase through the first half of the Twenty-first Century. However, the "gender shift may be the most significant change in the history of the American workplace" (Judy & D'Amico, 1997, 52). According to the US Department of Labor Women's Bureau (2000), 62 million women were participating in the US labor force, i.e., six of every ten women 16 years and over were employed in 1999.

Table 2
US Labor Force by Gender, Race, and Age 1994-2005

US Labor Force	1994	2005 (Estimates)
Gender		
Men	54%	52%
Women	46%	48%
Race		
White, non-Hispanic	77%	73%
Black, non-Hispanic	11%	11%
Hispanic	9%	11%
Asian, other non-Hispanic	3%	4%
Age		
16-19	3%	6%
20-24	11%	10%
25-34	26%	21%
35-44	27%	24%
45-54	19%	24%
55-64	9%	12%
65 and older	3%	3%

Source: Employment outlook: 1994-2005 Job quality and other aspects of projected employment growth. U.S. Department of Labor, Bureau of Labor Statistics, 1995.

PURPOSE

The purpose of this research is to explore the status of women in the US workforce including (1) a brief history of women's entrance into the workforce, (2) a comparison of men and women's pay, work positions, and promotion possibilities, (3) a review of women entrepreneurs, and (4) an examination of obstacles facing women in the workplace.

WOMEN ENTER THE US WORKFORCE

Historical beginnings of women entering the workforce provide a foundation for evaluating growth, participation, capabilities, and contributions of women in the US workforce and in the economy. The number of women in the workforce steadily increased during the 1800's (The Effect, 1996). Predominantly, jobs for women included domestic work, selling hand-made goods and food, and positions in lower class situations. However, a small number of women enjoyed employment in gender-specific positions as teachers and nurses or in low-end jobs in mills and sweatshops (Judy & D'Amico, 1997). Additionally, some women worked as domestics during this time period. Both women and children entered the workforce during the 1929 depression, working along-side men. Still, men dominated the workplace and upper level positions. World War II, however, was a catalyst for women entering the work world during the last half of the Twentieth century.

World War II

During the early 1900's women's participation in the workforce gradually increased but made up a small percentage of the total workforce—in 1900, the percentage of female workers was only 18.1 percent and had risen only to 20.4 percent by 1920 and 21.9 percent by 1930. During the Civil War and World War I, women entered the job market as men left to fight the wars. However, most women returned home after these wars ended (Kay, 2000).

On the other hand, World War II served as the conduit of major change in the demographics of the US work force. Many women entered the job market, working on farms and in factories to take the place of men who had gone to war (Judy & D'Amico, 1997). During this difficult time, women's traditional role took on new perspectives as they became the head of the home, held full-time jobs, and educated their children. Generally, women did not return home after World War II and made up 57 percent of the workforce in 1945 (Kay, 2000). This demonstration of women's strength is only one indication of women's ability to contribute to the US economy (The Effect, 1996).

Nature of Work Changes

In addition to the impetus of World War II requiring women to fill men's work positions, the nature of work performed began to change. Much of the work during the first half of Twentieth Century involved agriculture and manufacturing, and many jobs were labor bound and more easily completed by men because of their size and strength. American women proved themselves, however, as adept factory workers during World War II. Since the 1940s and 1950's, the number of women entering the workforce has increased, and especially so as the US economy changed from a manufacturing economy to a service economy during the last few decades (Judy & D'Amico, 1997). Most jobs, now, may be performed as easily by women as men. However, women had to fight for their status and place in their expanding role in society.

Women's Rights Movement

Women's battle for equality, both in the home and work place, in the US began in 1848 at the first Women's Rights Convention. However, it was not until 1920 that women gained the right to vote universally—144 years after the founding of the US. It was a struggle that took much picketing and conviction (National, 2002), but the adoption of the 19th Amendment to the Constitution guaranteed women the right to vote, among others. Although women's right to vote did not radically change politics, as was hoped, it did open the door for women to have a greater voice in shaping American society (Murrin, et al.,2002).

Another contributing factor to women entering the US work place was the Women's Rights Movement of the 1960's. In 1961, President Kennedy established the Commission on the Status of Women; the commission investigated discrimination against women and produced documentation that women were being treated as second-class citizens (National, 2002). The Commission also made recommendations on how to eliminate discrimination. Their work prompted the enactment of the Equal Pay Act of 1963 that provided women equal pay with men for performing the same work (Kay, 2000). Also, in 1964, the Civil Rights Bill was amended to include sex. Although sex" was added to the bill as a joke to "kill" the bill, the bill was passed, and women (sex) came under the same protection from discrimination as race, age, handicap, or national origin.

Since the 1960's, the role of women has drastically changed in the US. The passage of the Equal Pay Act and The Civil Rights Bill have provided women the impetus to enter the US workforce in much larger numbers (Kay, 2000). Additionally, women no longer see themselves as a reflection of a man (husband) or children. Most women see themselves equal to men and are interested in pursuing careers, as opposed to jobs, and independent lifestyles (National, 2002). Women have fought for equal opportunities in the workplace for many years and continue that struggle still today.

Education of Women

Obtaining advanced education is a reliable prediction of work force participation, and women have taken advantage of this path for entering the work force in greater numbers and at higher entry levels, possessing greater possibilities for promotion and advancement. Women's education levels at the undergraduate and graduate levels have matched the educational level of men since the early 1980s and have continued through the 1990s (Equal Pay, 1998) By the 1990s women earned 55 percent of bachelor's degrees, 53 percent of master's degrees, and nearly 40 percent of doctorates (Judy & D'Amico, 1997). With increased education and work experience, women began to realize that they deserved more than the traditional pink collar or role-segregated jobs of their predecessors. Education also helped women become more aware of their rights and responsibilities as citizens, and, as a result, women are demanding their rights more in society and in the workplace (Khojasteh, 1998).

Men No Longer Sole Provider

Traditionally, American society placed the man as head of the home and "bread winner." However, developments within the US society, mainly increased divorce rates, women's changing self-perceptions, and abandonment of families by men, truly launched new trends. First, men are no longer the sole or even the primary source of financial support of families. In 1980 wives were the sole support in 14 percent of American married-couple families; by 1993, the percentage had increased to 20.

A second trend involves two-earner families, where both husband and wife work full-time. This demographic category also increased from 39 percent to 55 percent of all married-couple families from 1980 to 1993. It appears that this trend is likely to continue (Judy & D'Amico, 1997). This category also experienced the highest median income of all family types (U.S. Dept. of Labor, 2000).

A third trend involves women who are sole earners; women make up nearly two-thirds of families maintained by a single person, a category that increased from 12 percent of all families in 1980 to 16 percent in 1993 (Judy & D'Amico, 1997, 53). "In 1998, women maintained 13 million (18 percent) of the 71 million families in the U.S. These are families with no husband in the household and consisted of 14 percent Caucasian families and 47 percent Black families; and 24 percent were of Hispanic origin families" (U.S. Dept. of Labor, 2000-2001).

Today, single parents head 27 percent of American households with children under 18 years of age, compared to a mere seven percent in 1950. What's more startling is that single fathers only comprise five percent of that total with 16 percent living below poverty level; the poverty level for single mothers is more than double that amount at 34 percent. Single mothers have become the new norm for the American family (Carlson, et al., 2001). Although women's roles are increasing and broadening in the work force, their pay and advancements possibilities are not increasing at the same rate.

A COMPARISON OF MEN AND WOMEN'S PAY, WORK POSITIONS, AND PROMOTION POSSIBILITIES

Pay Comparisons

Individuals with the same qualifications performing the same jobs should make the same pay, and this right was guaranteed women with the passage of the 1963 Equal Pay Act. The Act provided for equal pay for equal work in the same establishment for employees performing jobs requiring equal skill, effort, and responsibility (Milkovich & Newman, 1999). Although Congress has been active in trying to eliminate discrimination in the workplace and in work opportunities, more than 250,000 women representing all 50 states indicated in a 1994 survey conducted by the Women's Bureau Fair Pay Clearinghouse that "improving pay scales.…" was one of their highest priorities in improving workplace issues (U.S. Dol Women's Bureau Fair Pay, Retrieved 2/24/2002).

Table 3
Women's Earnings as a Percent of Men's Earnings, 1979-1997

Year	Annual	Weekly	Hourly
1979	59.7	62.5	64.1
1980	60.2	64.4	64.8
1981	59.2	64.6	65.1
1982	61.7	65.4	67.3
1983	63.6	66.7	69.4
1984	63.7	67.8	69.8
1985	64.6	68.2	70.0
1986	64.3	69.2	70.2
1987	65.2	70.0	72.1
1988	66.0	70.2	73.8
1989	68.7	70.1	75.4
1990	71.6	71.9	77.9
1991	69.9	74.2	78.6
1992	70.8	75.8	80.3
1993	71.5	77.1	80.4
1994	72.0	76.4	80.6
1995	71.4	75.5	80.8
1996	73.7	75.0	81.2
1997	74.2	74.4	80.8
1998	73.2	76.3	81.8
1999	72.2	76.5	83.8

Source: U.S. Department of Labor Women's Bureau. March 2000. Facts on Working Women. 20 Facts on Women Workers.

In 1967, women earned 60 cents for full-time work, while men earned $1. Women's salaries experienced the most growth during the 1980s, then made very small growth percentages throughout the 1990s, as displayed in Table 3. Although progress in equity pay has been made, there remains a startling imbalance in pay; according to the U.S. Department of Labor Women's Bureau, women

continued to make only 72.2 cents to a man's $1 in 1999 (Facts on Working Women, 2000). Additionally, some researchers indicate that women's salaries are increasing, but that some of the decline experienced in the wage gap is actually a result of men's salaries decreasing.

The AFL-CIO Report (2001) supports the US Department of Labor's statistics indicating that women's wages fell to 72 cents to a man's $1 in 1999. Additionally, the AFL-CIO Report indicated that wages for minority women were much worse, with African-American and Hispanic women making 65 cents and 52 cents, respectively, to a Caucasian male's $1.

There is a great divide of opinion, however, on the validity of the US Department of Labor and AFL-CIO's reports of pay discrimination. The counter to the previous statistics, including the National Committee on Pay Equity, believe that the wage gap exists because of differences in education, experience, length of service, and women's choices (Edmonds, 1999). Another reason purported to explain the pay difference between men and women is that "average full-time" pay is the determinant, without taking into account that women's average workweek is 41.3 hours compared to 45 hours for men (Facts and Fallacy, 1999). According to Facts and Fallacy, correcting for the difference in number of hours worked lowers the difference between men and women's pay to 19 cents. This same viewpoint asserts if experience and tenure, education and field of specialization, and industry and occupation of men and women are considered the gap goes down even further.

The President's report (Women in the Workforce, 2000) somewhat supports this viewpoint. The report indicates that differences in income is attributed one-third to differences in skills and experience between men and women, one-third to the fact that men work in higher paying industries, and one-third remains unaccounted for. Another reason given for the remaining unexplained income is that women's job experience is more likely to be discontinuous, but according to Infante (2001), "only 5.1 percent of all women in the workforce take more than a week off for any reason—including maternity leave, which is not significantly more than the 3.3 percent of men who do the same."

The U.S. Department of Labor Women's Bureau (Facts About Working Women, 2000) indicates that women may congregate in too few occupations, generally the lower paying ones, and that the influx in numbers causes less demand for workers, resulting in lower wages. However, the scientific evidence reviewed by the Natinal Academy of Sciences does not support this view. Instead, their findings suggests that women face discrimination and institutional barriers such that "opportunities that women encounter in the labor market and in pre-market training and education constrain their choices to a narrow set of alternatives" (Sex Segregation, 1986, p. 2). It is also believed that women may be directed into lower paying career fields by society and stereotypical gender roles. Discrimination and a difference in personal-value structure were also named as contributing to the wage gap. The differences in wages between men and women in the 20 leading occupations for women are revealed in Table 4.

There is merit to the discrimination reasoning, however, as evidenced by two to three million dollars being awarded to defendants each year between 1992 and 1997, who had filed discrimination cases with the Equal Opportunity Commission. Additionally, according to the National Science Foundation, female college graduates aged 25 to 36 earned only 73 percent of their male peers in 1993.

Table 4
20 Leading Occupations of Employed Women
2000 Annual Averages (In Thousands)

Occupations	Total Employed Women	Total Employed (Men and Women)	Percent Women	Women's Median Usual Weekly Earnings	Ratio Women's Earnings To Men's Earnings
Total, 16 years and over	62, 915	135,208	46.5	$491	76.0
Sales workers, retail and personal services	4,306	6,782	63.5	301	55.8
Secretaries	2,594	2,623	98.9	450	N.A.
Managers and Administrators, n.e.c.(2)	2,418	7,797	31.0	733	66.3
Cashiers	2,277	2,939	77.5	276	88.2
Sales supervisors and proprietors	1,989	4,937	40.3	485	69.8
Registered nurses	1,959	2,111	97.8	782	87.9
Elementary school teachers	1,814	2,177	83.3	701	81.5
Nursing aides, orderlies, and attendants	1,784	1,983	90.0	333	88.1
Bookkeepers, accounting, & auditing clerks	1,548	1,719	92.1	478	88.7
Receptionists	984	1,017	96.8	388	N.A.
Sales workers, other commodities (3, 4)	949	1,428	66.5	319	69.3
Accountants and auditors	903	1,592	56.7	690	72.4
Cooks	899	2,076	43.3	290	89.5
Investigators & Adjusters (excl. insurance)	833	1,097	75.9	459	82.6
Janitors and cleaners	811	2,233	36.3	309	83.1
Secondary school teachers	764	1,319	57.9	741	88.6
Hairdressers & cosmetologists	748	820	91.2	339	N.A.
General office clerks	722	864	83.6	430	91.3
Mgrs., food serving & lodging establ.	677	1,446	46.8	475	73.0
Teachers' aides	646	710	91.0	338	N.A.

1 Wage and salary for full-time workers.

2 Job elsewhere classified.

3 Included in sales workers, personnel and retail workers.

4 Includes food, drugs, health, and other commodities.

N.A. Median not available where base is less than 50,000 male workers.
Source: 20 Leading Occupations of Employed Women in 2000. Retrieved from http://www.dol.gov/dol/wb/public/wb_pubs/20lead2000.htm February 21, 2002.

In 1999, nearly 50 percent of female college graduates earned 87 percent of male peers when controlling for age, degree level, field of study, and occupation (WOW, 2000). Also demonstrating that there is still not equal pay for equal work, as shown in Table IV above, females, even in female dominated occupations, continue to make less than men. Further, women householders fair worse than any other group as shown in Table 5.

Table 5
Median Income of Families, by Family Type, 1998

Type of Family	Median Income
Married-couple family	$54, 180
Wife in paid labor force	63, 751
Wife not in paid labor force	37,161
Male householder, no wife	35,681
Female householder, no husband	22,163

Source: Facts on Working Women, U.S. Department of Labor Women's Bureau, March 2000.

Even though a gap remains between men and women's pay, the gap has been gradually closing since 1973. Women's pay experienced the greatest increase during the 1980's and incremental increases during the 1990's. At the same time, men's earnings peaked in the 1970's and have "drifted downward" since (U. S. Dept. of Labor, 2000). Although the pay gap is decreasing, the presence of women in top-level corporate positions is minimal.

Work Position Comparisons

A very small percentage of women have made it to the highest levels of authority in US corporations. Women have been promoted and make up 12.5 percent of corporate officers, and 4.1 percent of top earners. Only 6.2 percent of top managers are women (chairman, vice chairman, CEO, president, chief operating officer, senior executive vice president, executive vice president); in numbers this percentage represents 154 women versus 2,488 men. And only 7.3 percent of "line"—revenue-generating—positions are held by women (Catalyst Fact Sheet, 2000).

Considering that women make up 46 percent of the workforce, an extremely disproportionate number of women hold upper management positions. "Catalyst's 1997 Census of Women Corporate Officers and Top Earners' showed that only 10.6 percent of the corporate officers in Fortune 500 companies are women" (Solomon, 1998). Also, the few women who hold top management positions still earn only a fraction of what their male coworkers are making. Sheila Wellington, president of Catalyst (the research and advisory commission for helping women achieve equality in the workplace) says, "We couldn't find any simple explanation for such a salary gap. By any measure

of comparison—title, functional status, age, company ranking among them—women top earners aren't only out numbered, they earn less than their male counterparts" (Laabs, 1999).

Supporting these figures are the results of the 1995 Glass Ceiling Commission that reported that 95-97 percent of senior managers of Fortune 1000 and Fortune 500 companies were male. Additionally, "in the Fortune 2000 industrial and service companies, only 5 percent of senior managers were female" (Equal Pay, 1998).

The greatest numbers of women work in technical, sales, and administrative positions. More women, however, were employed as K-12 teachers, secretaries, managers and administrators, and as cashiers (U.S. DOL, 2000-2001). The six occupations with the greatest number of women, making up 25 percent of all women workers, are shown in Table 6 below.

Perhaps more encouraging in some ways is the statistics provided by the "Economic Report of the President" released in mid-February by President Clinton's Council of Economic Advisers. From 1950 to 1999, the percentage of women among U.S. architects nearly quadrupled, to 16%; the percentage of women economists nearly tripled to 51% of the profession; the share of women pharmacists increased six-fold, to 49%; and the number of women lawyers went up sevenfold, to 29%. Women journalists now total 50% of the workforce, up from 38% in 1950 (Women in the Workforce, 2000).

Table 6
Leading Occupations of Employed Women, 1999
(numbers in thousands)

Occupation	Number Employed
Teachers, excluding post secondary	3,952
Secretaries	2,742
Cashiers	2,321
Miscellaneous Managers/Administration.	2,349
Sales supervisors & proprietors	2,005
Registered nurses	1,978

Source: Facts on Working Women, 2000.

Promotion Possibilities

Explanations for such negligible numbers of women in top management are offered by Stavraka (2000). She purports that women are predominantly put in staff positions as opposed to line positions "those with revenue or profit-and-loss responsibility)" and, as a result, are not able to take advantage of obtaining the training and experience to advance up the corporate ladder. As discussed previously, women make up only 7.3 percent of line positions (Catalyst Census, 2000).

Also, men and women's employment evaluations differ, with men's focused on career development and women's on current performance. Further, Stavraka (2000) believes women's progress is hindered by three obstacles—"stereotyping, exclusions from informal social (good old boy) networks, and lack of opportunity." She states, "It's the prevalence of unfair gender myths – such as the belief that women simply aren't interested in the fast track – that often keeps women out of the management pipeline." Because of problems with advancement and other discriminations, many women are opting for nontraditional work situations.

Women have begun increasing their presence in nontraditional occupations such as "bank officials and financial managers, transport equipment operatives, engineering and science technicians, and computer specialists", and many women have chosen to join the military. These occupations offer women opportunities to break out of the traditional career paths for women. "Women now account for more than 25 percent of all lawyers and physicians—once male bastions (Equal Pay, 1998). Another career avenue women have selected in order to exert more control over their careers is evident in the increasing numbers of women starting their own businesses.

A REVIEW OF WOMEN ENTREPRENEURS

Women are leading an economic revolution in this country. Women who are weary of trying to adapt to environments where they are not welcome are leaving to create companies that fit them (Nichols, 1994). Women frequently start companies in which the customer pays up front for the product, making their business a trust-based business. The voice of the woman entrepreneur is controlled, calm, and self-assured.

Women business owners have styles of thinking and management that differ in several important ways from men. While men strongly emphasize logical, left-brain thinking, women are somewhat more likely to emphasize intuitive, right-brain thinking. Women are less hierarchical, may take more time when making decisions, seek more information, and are more likely to draw upon input from others (WBENC, 2001).

In 1977, women owned fewer than one million firms (Equal Pay, 1998). However, women-owned businesses increased 15 percent each year between 1977 and 1992, "the most recent year for which data is available" (U.S. Depart. Of Labor, Women Business Owners, 1999). "By 1992, they owned nearly 6.4 million businesses" (Equal Pay, 1998). And by the end of the Twentieth Century, women owned 38 percent of all US firms and "generated more than 3.6 trillion dollars annually in sales, resulting in women owning more than 60 percent of the nation's wealth and 35 percent of the nation's stocks and mutual funds" (National Foundation for Women Business Owners, 2001). These women owned firms also represent 35 percent of all US firms with employees (U.S. Dept. of Labor, Women Business Owners, 1999).

Moore and Buttner (1997) indicate that prior to the 1980s, most women-owned businesses were small, slow growing and offered low income for owners. Second generation women-owned businesses, however, are diversifying into more nontraditional female business areas such as construction, wholesale, automotive dealers, and service stations. Characteristics of women-owned businesses are presented in Table 7.

Table 7
Women Owned Businesses Characteristics

♦	Owned 54 percent of all firms and accounted for 34 percent of gross receipts in apparel and accessory stores
♦	Owned 53 percent of all firms and accounted for 31 percent of gross receipts in miscellaneous retail stores
♦	Accounted for 51 percent of the retail trade revenue in automotive dealers, gasoline service stations, and miscellaneous retail stores
♦	Fifty percent were home-based
♦	Twenty-six percent used home to produce goods and services on the premises
♦	Approximately two-thirds had 50 percent women employees
♦	Started from a desire of self-determination, challenge, respect, recognition, and self-esteem

Source: (U.S. Dept of Labor, Women Business Owners, 1999).

Another reason for the tremendous increase in women owned businesses is the existence of the glass ceiling, an invisible barrier to advancement opportunities for women. Research completed by the National Foundation for Women Business Owners indicated that "women business owners with corporate experience said that glass ceiling issues' were significant in motivating them to start their own companies" (Equal Pay, 1998).

Women moving into their own businesses have been compared to "entrepreneurial patterns of other minority groups, particularly immigrants to the United States, who have experienced language barriers, stereotypes, and discrimination which limited access to jobs and hindered earning potential" (Equal Pay, 1998).

Women of the Twentieth and Twenty-First Century are seeking careers, not just jobs (Smith, 1992). According to the latest "economic report of the President (BW Online, 2000) "the progress made by women in the paid labor market has been one of the most important economic changes of the 20th century."

BARRIERS

Stereotypical Attitudes

According to a research study by Catalyst, women in high ranking positions in companies in the US, Canada, and the UK indicate that "male stereotyping and preconceptions of women's roles and abilities are top barriers to women's advancement" (Catalyst 2000). These results were garnered from studies completed in the US, 1996, and in Canada, 1997, and again in the UK, 2000. Each study was a replication; a total of 1188 women participated, of which 117 were CEO's. These research studies enabled the comparison of women's views from three countries.

Gender role norms—expectations about appropriate behavior of women versus men—are learned in very early stages of childhood. "Specifically, children learn which gender they are and the role behaviors associated with being male or female in their culture" (Parsons, 1983, 19). These stereotypes regarding women's role in society, many times carry over into the workplace. The 'traditional woman' is viewed as being "emotional, passive, nurturing, weak, dependent, non-assertive, and incompetent, except in narrowly defined domestic chores" (Obstacles to Women, 1996). Traditional attitudes toward women may also be characterized by the belief that women are better at certain jobs and tasks and that men are better at others.

Men in positions of authority and in peer-positions at work may view assertive, female leaders as being "out of their role" thus affecting evaluations, promotions, and salary. Men may also see women as incapable of performing certain tasks as well as a man.

"Good Ole Boy" Networks

A second major barrier for women obtaining high level positions and further promotions is the glass ceiling or "good ole boy" networks. Women are many times overlooked because individuals tend to hire people they know and feel comfortable around. As mentioned above, women's employment evaluations may reflect inaccurate appraisals. Additionally, "good ole boy" networks generally operate by word-of-mouth as opposed to reviews of corporate performance appraisals (Carlson, 1999), thus making it almost impossible for women with excellent past performance records and many years of experience to be honestly considered for positions of power and authority.

The "Glass Ceiling"

Even now, the glass ceiling still exists. It is preventing women from holding the top corporate offices in America As a result men have a much better opportunity to reach top-level management positions in the largest corporations of America. Additionally, the experience that a woman can gain is many times considered inferior to the experience of men, and many times, this lack of experience is because women are not usually promoted into line positions—revenue generating positions that lead to top levels of management.

This dogma can be blamed on the fact that, historically, men have been the sole economic providers of the family. And women often stayed at home. Now that women are "cracking" the glass ceiling, many men view them as a threat and as competition. Because many men perceive women a threat in the business world and in traditional positions, such as secretary, assistant, or clerk, women are stereotyped as being less competent in business leadership. The fact that women now make up 46 percent of the total work force but only 6.2 of top managers is evidence that the "glass ceiling" is still a significant barrier to women in the U.S. workforce (Catalysts Fact Sheet, 2000). The existence and powerfulness of the "glass ceiling" is also evident by the low numbers, only 3 to 5 percent, of women in top management positions in Fortune 500, 1000, and 2000 companies as reported by the 1995 Class Ceiling Commission discussed previously (Solomon, 1998).

SUMMARY

Women entered the U.S. work force in mass and in nontraditional work positions primarily in response to jobs left vacant during World War II. After the War, however, many women continued to work, although they were relegated to role segregated jobs and jobs considered to be traditional, such as teaching and nursing. Women had to fight for equality in the home and in the workplace. Education was one venue that women elected to follow to increase their value, worth, and advancement possibilities in the workplace.

Significant societal changes also placed women in position of head of home and as sole support or in dual income family situations. Even though women made some gains in equal treatment via the 1963 Equal Pay Act and the 1964 Civil Rights Act, the US workforce has predominantly remained a Caucasian male bastion.

Women now make up 46 percent of the total US work force, yet their percentage of top managers is a mere 6.2 percent, 154 women versus 2,488 men. Additionally, only 7.3 line positions, those that lead to top positions, are made up of women. Further, women continue to make only 72.2 cents to a man's $1 in 1999 (Facts on Working Women, 2000). As a result of these and other hindrances, many women are choosing nontraditional work positions such as financial managers, computer specialists, and self-employment. By 1992, women owned nearly 6.4 million businesses, and by the end of the Twentieth Century, women owned 38 percent of all US firms and generated more than 3.6 trillion dollars annually in sales, resulting in women owning more than 60 percent of the nation's wealth and 35 percent of the nation's stocks and mutual funds (National Foundation for Women Business Owners, 2001).

Although women are making great strides in the work environment, they still face and must deal with stereotypical attitudes, "good ole boy" networks, and the "glass ceiling."

REFERENCES

Across Three Cultures Catalyst Finds Top Barriers to Women's Professional Advancement. (December 11, 2000). Catlystwomen.org [Online] Available: http://www.catalystwomen.org/press/releases/release121100.html. Retrieved July 22, 2001.

AFL-CIO. (2000). Facts About Working Women. [Online] Available: http://www.alcio.org/women/wwfacts.htm. Retrieved October 15, 2001.

BW Online. (February 15, 2000). Women in the Workforce: They Have Come a Long Way. [Online] Available: http://www.businessweek.com/bwdaily/dnflash/feb2000/nf00215.htm. Retrieved October 18, 2001.

Catalyst Fact Sheet: 2000. (2000). Catalyst…Corporate Officers and Top Earners. [Online] Available: http://catalystwomen,org/press/factsheets/factscote00.htm. Retrieved July 18, 2001.

Carlson, M., Kaarpeta, K., Svensson, E., Weaver, C. & (Tutor) Mullern, T. (1999). Women and Leadership. Paper within Leadership Course, Jonkoping, December 1999, Sweden. [Online] Available: http://studweb.euv-frankfurt-o.de/~euv-5327/papers/lead_big.htm.

Edmonds, P. (June, 1999). The Wage Gap: Pay Equity Debate Creates Huge Political Divide. [Online] Available: http://www.fact.on.ca/newpaper/wm990630.htm. Retrieved July 29, 2001.

Equal Pay: A Thirty-Five Year Perspective. (1998). Washington, D.C.: U.S. Depart. Of Labor, Women's Bureau.

Facts and Fallacy: The Facts About Pay Equity. (March, 1999). Employment Policy Foundation. [Online] Available: http://www.epf.org/research/newslettes/1999/ff990315.asp. Retrieved August 2, 2001.

Facts on Working Women: Earnings Differences Between Women and Men. (2000). U.S. Department of Labor Women's Bureau. [Online] Available: http://www.dol.gov/dol/wb/public/wb_ubs/wagegap2000.htm. Retrieved February 27, 2001.

Facts on Working Women: 20 Fact on Women Workers. (March 2000). U.S. Department of Labor Women's Bureau. [Online] Available: http://www.dol.gov/dol/wb/public/wb_pubs/20fact00.htm. Retrieved August 10, 2001.

Guirdham, M. (1999). *Communication Across Barriers*. Indiana: Purdue University Press.

Infante, V. (2001). Why women still earn less than men. Workforce. [Online] Available: http://newfirstsearch.oclc.org/WebZ/FSPage?pagename+=ftascii:pagetype=print:entityprinting=true=entitycurrencno=1:sessionid… Retrieved November 18, 2001.

Kay, H.H. (December, 2000). From the Second Sex to the Joint Venture: An Overview of Women's Rights and Family Law in the United States During the Twentieth Century. *California Law Review, 88*(6), 2017-2093.

Laabs, J. (1999). Sturn Gets Female President, but Female Leaders are Still a Corporate Oddity. Workforce. [Online] Available: http://newfirstsearch.oclc.org/WebZ/ FTFETCH?sessionid= sp04sw01-59110-cu7ghofr-57bcjj: entitypagenum=11:0:rule990:fe ... Retrieved November 18, 2001.

Judy, R. W. & D'Amico, C. (1997). Workforce 2020: Work and Workers in the 21st Century. Indiana: Hudson Institute.

Khojasteh, M. (1998). *Managing Workforce Diversity in Organizations.* Champaign: Stipes Publishing.

Milkovich, G.T. & Newman, J.M. (1999). *Compensation. 6th Edition. The Government's Role in Compensation.* Boston: Irwin McGraw-Hill, 539-571.

Moore, D.P., & Buttner, E.H. (1997). *Women Entrepreneurs Moving Beyond the Glass Ceiling.* Thousand Oaks, CA: Sage Publications, Inc.

Murrin, J.M., Johnson, P.E., McPherson, J.M., Gerstle, G., Rosenberg, E.S., & Rosenberg, N.L. (2002). *A History of the American People, Volume II: Since 1983.* Fort Worth: Harcourt College Publishers.

National Foundation of Women Business Owners. (2001). Key Facts [Online]. Available: http://www.nfwbo.org/key.html. Retrieved February 25, 2001.

National Women's Hall of Fame. Gloria Steinham(National Organization of Women) link. Retrieved from American Cultural History web site: http://www.njmccd,edu/contracts/lrc/kc/decade60.html.

Nichols, N. Ed. (1994). *The Memo Every Women Keeps in Her Desk. Reach for the Top.* Boston, MA: Harvard Business School Publishing Corporation, 81.

Obstacles to Women in the Workplace. (1996). [Online] Available: http://www.snu.edu/syllabi/history/f96projects/women/obstacle.htm. Retrieved November 18, 2001.

Sex Segregation. (1986, February 14). *Monthly Labor Review.*

Smith, A.S., Ahmed, B., & Sink, L. (November 2000). An Analysis of State and County Population Changes by Characteristics:1990-1999. [Online] Available: http://www.census.gov/population/www/documentation/twps0045/twps0045.htm. Retrieved July 7, 2001.

Solomon, C. (1998). Women are Still Undervalued: Bridge the Parity Gap. Workforce. [Online]. Available: http://newfirstsearch.oclc.org/WebZ/FSPage?pagename+=ftascii:pagetype=print:entityprinting=true=entitycurrecno=2:sessionid … Retrieved November 18, 2001.

Stavraka, Carol. (March 2000). Women in the Workforce: Is Equality in the Executive Office Achievable? DiversityInc.com. [Online] Available: wysiwyg://74/http://www.diversityinc.com/Feature/equity.cfm. Retrieved February 27, 2001.

The Effect of Women in the Workforce. (1996). [Online] Available: http://www.snu.edu/syllabi/history/f96projects/women/work/htm. Retrieved November 18, 2001.

U.S. Census Bureau, Washington, D.C. (August 2000). Population Estimates Program, Population Division. [Online] Available: http://www.census.gov/ppulation/estimates/nation/intfile3-1. Retrieved August, 2000.

U.S. Department of Labor Women's Bureau. (2000-2001). Facts on Working Women. 20 Facts on Women Workers. [Online] Available: www.dol.gov. (March 2000).

U.S. Department of Labor Women's Bureau. (April 1999). Facts on Working Women: Women Business Owners. [Online] Available: http://www.dol.gov/dol/wb/public/wb_pubs/wbo.htm. Retrieved August 10, 2001.

U.S. DOL Women's Bureau Fair Pay Clearinghouse. From Don't Work in the Dark, Know you Rights Campaign. [Online]. Available: http://www.dol.gov/dol/wb/public/programs/fpc.htm. Retrieved February 24, 2002.

WBENC. (2001). Key Facts The Center for Women's Business Research. [Online] Available: http://nfwbo.org/key.html. Retrieved October 23, 2001.

Women in the Workforce: They Have Come a Long Way. (February 15, 2000). BusinessWeek Online: Daily Briefing. [Online] Available: http://www.businessweek.com:/bwdaily/dnflash/feb2000/nf00215a.htm?scriptFramed (July 22, 2001).

WOW! (2000). Working Women Gender Equity. [Online] Available: www.ewowfacts.com/wowfacts/pdfs/women/1working3women.pdf. Retrieved October 15, 2001.

WORKING LIFE OPPORTUNITIES VERSUS LEGAL OBSTRUCTIONS AS CONFLICTING PARTICULARS SHAPING TURKISH FEMALE WORKFORCE AND ENTREPRENEURSHIP: BREAKING THE LEGAL GLASS BOX

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ABSTRACT

Today Turkish women labor in the form of employees, employers and self-employment have a significant role in the economic life of the nation, despite inefficiencies originating from lack of certain knowledge and skills, beyond the shortfall of assistance by civil society organizations, and government bodies sometimes hampering such progress through discouraging bureaucratic rules and applications. However, as explored in this study via the review of existing literature and proceedings of official bodies, other than the interviews with women-entrepreneurs, one critical issue is the segregative clauses in the Turkish Legal Code that barriers the would-be contribution of female workforce (and entrepreneurship) to business life. In order to create a better environment for women to work for others and their ownselves, national legal procedures should be cleared out of such items--also as a prerequisite of the international agreements promised to be followed.

INTRODUCTION

Last twenty years witnessed increased participation of women to laborforce as employees and self-employed, entering men dominated business areas beyond their traditional line of work. While in 1890s "fewer than 20% of women chose paid employment and most of those who did had low-paying and unattractive jobs", in 1995 more than 60 % became a part of the workforce, and "although many had low-paying jobs, more and more women were found in the professions and in executive positions" (Parkin et. al., 1997, 194, 195). Neft and Levine (1997) note that by 1995 figures women constituted 36% of the total workforce on global basis, with "sharpest growth rates" highest in industrialised countries except Eastern Europe. "The areas with the lowest rates of growth were those regions that already had large proportions of working women-Eastern and Central Asia and Eastern Europe. Sub-Saharan Africa recorded a slight decline" (p. 50). However, "whether in the West or in the developing world…not all women are content to be employees." There is "a growing number…emerging as entrepreneurs" choosing "for their own account, to organize and manage the resources of their own companies and assume the financial risks inherent in doing so in the hope of eventually earning a profit" (Starcher, 2001). Although "Female-entrepreneurship is a relatively recent phenomenon which took off only in the 1970s" women were already "taught to

use their initiative under what are often difficult circumstances, in other words, to be enterprising and innovative" through their "household duties…including child-rearing and the financial practical side of housekeeping" (OECD, 1997, 3). "The number of women and minorities in small business has grown exponentially since 1960. The appeal of small business-independence, challenge, personel freedom-is the same for women and minorities as for anyone else. Yet these qualities are especially desirable for individuals who have been faced with discrimination in the workplace, whether it was deliberate or unintentional" (Hatten,1997, 42). The 1980s were called the "decade of women entrepreneurs." In fact, the female entrepreneurs have been the fastest growing segment of the small business sector, creating firms at a rate twice that of their male counterparts (Megginson et al., 2000, p. 38).

Despite notable progress on global basis, discriminative issues resulting from inherited traditional approaches to women's status and role in society hinder women paid-labor. "Widespread gender discrimination" that "hardly uptunes the nature of existence for the vast majority of women in the Third World, where a combination of culture, laws and religion not only deprive women of basic human rights, but relegate them in some places to almost subhuman status" contradicts to equal rights argument on the part of women. "In parts of Latin America, Asia, or Africa, women suffer from endless discrimination that begins even before birth with forced abortion in some countries" (Viotti, 2001, pp. 442, 443). Such segregation is furthermore reflected to the legal codes of industrializing nations resulting in inefficiencies in overall working life, where, though in a more polished way Western countries are not "all exceptional" to cases segregating in sexes in working life. As an example, Dass and Parker (1999) notes that there are cases in U.S. where "an organization under court order to hire more minorities and women used manipulation tactics when it counted the same person three times in the same compliance report because one parent was black, the other Asian, and she was female" (p. 70).

Recently, similar discriminating clauses in Turkish Legal Code pertaining to female-workforce reflect a noteworthy part of the problems in working life and labor relations, where, is leading to an "even higher" inert female work power resulting in decreases in output and wealth consequently creating a part of the social disorder.

TURKISH WOMEN'S ROLE IN WORKING LIFE AND ENTREPRENEURSHIP

The status of women in Turkish society is determined through interplay of contradictions between globalisation, modernisation and traditionalism. She is the lone secular country with a predominantly Muslim population in the world of Islam, remaining the only society making women's position before the law most egalitarian among Muslim countries despite still being "a complex issue with not one but many faces, images and roles" (Saygin, 1997, p. 16). But she is not all alone in the region on the issue, having somewhat similar examples. As commented by Zilber (2002) "like other heterogeneous Western societies, Israel contain conflicting tendencies regarding the status of women and of feminism. On the one hand, Israeli law protects women's equality and supports their involvement in public life. On the other, religious beliefs and social structures, the importance of the family as a social unit and the importance of motherhood, the experiences of men and women

in the military, and the status of the military as a powerful patriarchal institution in Israeli society all reinforce traditional roles and marginalization of women" (p. 238).

While classified as the lowest according to OECD listings, Turkish women have a significant role on the economic progression of the country, with both her paid and unpaid labor. Data indicates that only 17.3% of the women in Turkey are employed in paid-work (Gurol, 2000, p. 259). But changing economic conditions and the dwindling of customs and traditions altering the domestic social and cultural sub-structure is having a push effect on Turkish women making them move towards paid labor. Under present economic circumstances, it is getting hard for families to survive with single person income. Decreases in the number of formal businesses also urge people to participate in informal sector, one that is structurally open to women as much as men. Nevertheless there are reasons making Turkish unpaid women workforce to stay in that zone. Men better educated than women as a result of traditional and economic reasons become more preferable to women in the labor market. Lack or high-cost of child-care establishments, when combined with the must-housework that is customarily a burden under any circumstances (to be in paid-work or not), also forces women to stay home away from paid-work.

Whilst the current indicators (see Table 1) prove falls in female labor on a ten-year basis (from 75,8% in1990 to 56,8% in-2000) women workforce is still highest in agriculture sector where the "sharecropping--a kind of land tenancy widely practiced throughout the world…Yet…long been found inefficient in Western economic literature--is widely practiced over country basis and family labor is the basic unit in production" (Bulutay, 1995, pp. 206, 210). In that part of the economy a large part of the women population is employed as "unpaid family workers" thus lacking economic independence despite hard and exhausting labor.

Following agriculture the second sector with highest women employment is the services where female labor increase rates are far higher than that of men within the previous decade (1990-2000). In industry--particularly in manufacturing--it is the lowest within the same time zone, despite exhibiting a noteworthy increase in rural areas (from 2,9% to 5,7%) and concentrating in labor-intensive ones (GDSPW, 1998, pp. 66-68) (See Table 1 below).

Lower unionisation rates apparently make women labor preferable against their male counterparts. Statistical data indicates that such rates are 46,6% (female labor) versus 56,0% (male labor) (GDSPW, 2001, p. 90) making the former preferable for marginal jobs with least labor protection under a social security umbrella. This is especially common for immigrant women new in urban areas where the working environment is hard to cope with.

There is also a strong tendency in Turkish women to become self-employed, starting their own work despite all contradictions as shortages in capital, problems in organizing, and getting training (Gurol, 2000). Yet there are other factors that lead Turkish women to entrepreneurship. Sarcastically, restrictions in the Turkish Legal Code creating a glass box effect thus favoring male labor against that of women is one main drive leading women to start their own ventures, making most to move out of the formal sector to the informal that is harsh in conditions but relatively freer to act. But, may be not by surprise, there are similar tendencies in other countries despite gaps in distance and culture. As an example in Japan, "where women deemed to be second-class employees, when encountered massive layoffs at Japanese companies in recession times, react in starting their own businesses." [This might be an important push factor leading them to start their own

businesses]. As with the 1994 figures, five ventures out of six in Japan had been started by women (De Cenzo, 1997, pp. 96,97). For reasons of comparison it must be added here that while this rate is one to three in Germany (Schnieber-Jastram, 1998, p. 311), it is three against one in the United States (Hisrich & Peters, 1998, p. 78).

Table 1
Turkish Men and Women Labor by Economic Activity (1990-2000)

Years		1990		2000	
		Women	Men	Women	Men
Turkey	Agriculture	75.8	33.6	56.8	25.2
	Industry	9.8	26.8	14.4	29.5
	Services	14.3	39.6	28.8	45.3
Urban	Agriculture	12.5	3.6	6.8	2.6
	Industry	34.7	40.6	27.1	38.6
	Services	52.7	55.8	66.1	58.8
Rural	Agriculture	93.6	64.4	89.7	59.8
	Industry	2.9	12.5	5.7	15.6
	Services	3.6	23.1	4.6	24.5

Source: General Directorate for the Problems and Status of Women, Prime Minister's Office, Turkey, (2000), Women in Turkey 2001, Can Advertisement and Printing House, Ankara, p. 77.
Note: Year 2000 relates to 12+ages, while others to 15+ages.

Another driving factor that attracts women to become entrepreneurs seems to be the many successful role models coloring their dreams. "Such attempts [also] drive policymakers to look for alternative strategies to help female entrepreneurs to grow their small businesses" (DAI, 1995, p.8). The results of a research on the reasons for women to start their own businesses conducted by the "The Strategic Research Foundation" (1995) indicate that the main issue is the desire for independence, followed by "better income potential" and "personal interest/skills" where "working conditions/hours" come last. The priority of the independence factor is also evident in earlier studies (e.g., Hisrich & Brush, 1989). It is also interesting to see that the "reasons" in the Turkish experience that led men and women to entrepreneurship are never too resembling to one another as indicated in Table 2 below:

Table 2
Reasons for Starting Business (%)

Reason	Women	Men
Wanted to be Independent	24.3	27.3
Better Income Potential	18.1	35.5
Personal Interest/Skills	15.5	8.1
Continue Family Business	10.6	11.9
Could not Find a Job	8.9	9.4
Working Conditions/Hours	5.9	0.9
Not to Sit Idle	7.2	1.7
Other	9.5	5.0
Total	100.0	100.0

Source: DAI. (1995). Supporting Women-Owned Businesses in Turkey: A Discussion of Needs, Problem, Opportunities and Strategies. Ankara: Development Alternatives, Inc. and the Strategic Research Foundation. p. 25.

Despite all such progress and promising trends, statistical data indicates a somehow steady fall in women employment in Turkey. As Table 3 (below) tells in the last decade of the former century women unemployment is tracking a slow but steady increase higher compared to that of men both in urban and rural parts of the country (GDSPW, 2001, p. 77). [However, contrary to the situation in Turkey] in common, long-term social trends indicate an increase in female employment. As an example, labor force participation rate of women increased from 48,2% in 1973 to 59,1% in 1988 in OECD countries. While that can be attributed to the poor political, administrational and economic conditions ending with the outflow of capital abroad, closing of and consequently layoffs by businesses all over the country--affecting all labor as well as the capital--it could also be tied to technological advances substituting capital for labor. [But it should be added here that] as there are studies claiming that the new technological revolution will have an important negative impact on employment, such pessimism is not shared because of the positive correlation between the technological progress and employment in the long run (Bulutay, 1995, p. 187). Accordingly, technological progress could be a dominating factor in women (and men) unemployment in short terms, while anticipated to be one that doesn't in the long run.

As blue-collar women labor is traditionally regarded to be "sacrificial" --last in, first out-in turbulent times in working life, in a typical layoff it will not be hard to guess that it will be "them" to be facing the hardship of unemployment in the firsthand. This is generally fuelled with restrictive and neglecting policy and applications, other than clauses discouraging in character relating to female workforce within the context of Legal Code system. Constant increases in the number of

housewives (from 41,2% in 1975 to 47,0% in 1990) presumably are another indication pointing out fall in women labor (GDSPW, 2001, p. 80).

Table 3
Share of Men and Women Labor in Civil Workforce
(1990-2000)

	Women			Men		
Years	Turkey	Urban	Rural	Turkey	Urban	Rural
1990	34.0	17.0	51.9	75.3	72.3	78.8
1991	32.3	13.8	52.0	72.4	70.0	75.1
1992	31.7	16.3	48.7	72.4	69.0	76.6
1993	30.6	16.7	46.3	70.3	68.0	73.2
1994	29.0	16.2	43.7	72.0	68.6	76.2
1995	30.7	15.5	48.7	71.2	66.6	77.0
1996	29.4	14.3	48.2	70.6	66.1	76.4
1997	25.2	16.1	36.9	69.9	66.8	73.9
1998	27.7	15.2	44.4	69.5	65.5	74.8
1999	27.4	16.5	49.1	70.1	65.9	76.7
2000	23.0	15.7	34.9	72.6	70.3	76.6

Source: General Directorate for the Problems and Status of Women, Prime Minister's Office, Turkey, (2000), Women in Turkey 2001, Can Advertisement and Printing House, Ankara, p. 77.
Note: Year 2000 relates to 12+ages, while others to 15+ages.

SEGREGATING ISSUES IN NATIONAL LEGAL CODE LIMITING WOMEN EMPLOYMENT AND ENTREPRENEURSHIP

The status of Turkish women, in working life and/or in other phases of the social activity is reflected through legal norms directed at two [closely related, but] separate directions: While a part of those intend to prevent discrimination, others merely designed to protect women in particular (Sur, 1998, p. 167).

One of the main elements of a comprehensive and integrated approach targeting to overcome gender inequality is a supportive legislative framework, efficient enforcement mechanisms, and legal literacy. Inequality is simply unfair. Turkey tries to promote rights equality' by trying to reach up related global and regional standards . Equality of the sexes has been given constitutional and

statutory recognition (Saygin, 1997, p. 21). Turkish Constitution (1982) Article 10 under heading "prevention of discrimination" relating to equality of all individuals before the law prohibits any type of discrimination (color, language, sect, race, religion, etc.) naturally including the one between the sexes.

Such prerequisite is expected to be reflected to all subordinate legal forms for it is the principal legal document requiring all other to be in compliance with itself in form and soul. Yet, in legal arrangements relating to women employment, there still are exceptions to the basic rule, exhibiting discriminatory forms that need to be eliminated and/or rearranged in order not to be so. At present, there is a proposal for the placement of a separate paragraph in Article 10, prohibiting discrimination between sexes, in particular.

Articles 41st and the 50th of the Turkish Constitution are examples of arrangements intending the protection of women in laborforce. While the former targets to shelter mothers (and children), latter is concentrated on the working conditions of women, which together with the children and bodily or mentally disabled aim to prevent them from harsh labor conditions. Reflections of such provisions of the Constitution to the Labor Law are Article 68, preventing women labor in underground and underwater works like mining, cable installation, sewage systems and tunnel construction, and Article 70, relating to the right of working women to leave in specified periods before and after giving the birth. Turkish Civil Servants Law also has protective clauses with regard to maternity related matters.

Yet, Turkey, among other 155 countries, is the signer of the "Committee on the Elimination of Discrimination Against Women (CEDAW)" agreement that targets men-women equality, where for such purpose all temporary and permanent measures are being demanded in order to change social and cultural behavioral standards through the elimination of assumptions, traditions and all other applications [that inheritably] determined by fixed roles of women and men (Gurol, 2000, pp. 294, 295). As commented by Pablos (1999) in her work on "Women in Mexico" this will not be so easy for "inertia in mentalities strongly affects customs and habits" and "country's laws are frequently and easily overlooked" even if the "initial and persistent juridical inequality of women throughout…history has nearly been eliminated" (p. 107).

Necessary modifications and rearrangements in the national legal code system are also a prerequisite for Turkish government(s) that signed a number of similar international agreements on women labor issues such as:

♦	International Labor Organisation (ILO) Convention No. 45: "Convention concerning the Employment of Women on Underground Work in Mines of all Kinds."
♦	International Labor Organisation (ILO) Convention No. 100: "Convention concerning Equal Remuneration for men and Women Workers for Work of Equal Value." Article 1of the Convention No. 100 indicates that "For the purposes of this Convention (a) the term "remuneration" includes the ordinary, basic or minimum wage or salary and any additional emoluments whatsoever paid directly or indirectly, whether in cash or in kind, by the employer to the worker and arising out of the worker's employment; (b) the term "equal remuneration for men and women workers for work of equal value" refers to rates of remuneration established without discrimination based on sex." (ILO, 1992, p. 529).

♦	International Labor Organisation (ILO) Convention No. 111: "Convention concerning Discrimination in Respect of Employment and Occupation." Article 1of the Convention No. 111 indicates that "1. For the purpose of this Convention the term "discrimination" includes (a) any distinction, exclusion or preference made on the basis of race, colour[,] sex, religion, political opinion, national extraction or social origin, which has the effect of nullifying or impairing equality of opportunity or treatment in employment or occupation; (b) such other distinction, exclusion or preference which has the effect of nullifying or impairing equality of opportunity or treatment in employment or occupation as may be determined by the Member concerned after consultation with representative employers' and workers' organizations, where such exist, and with other appropriate bodies. 2. Any distinction, exclusion or preference in respect of a particular job based on the inherent requirements thereof shall not be deemed to be discrimination. 3. For the purposes of this Convention the term "employment" and "occupation" include access to vocational training, access to employment and to particular occupations, and terms and conditions of employment." (ILO, 1992, pp. 702, 703).
♦	UN Organisation Agreement (1979) on the prevention of any discrimination against women.
Source:	Relating articles of "European Social Conditions" (Sur, 1998, p. 169).

Nevertheless, Turkey pioneered in signing two vital ILO conventions indicated above, Convention No. 45 on "women labor in underground work" (in 1937), and Convention No. 100 relating to "equal remuneration for men and women workers for work of equal value" (in 1963). Japan was the first to issue a law on the principles of the Conventions (1947), followed by Italy (1960), Turkey (1963), Canada (1971), Austria (1979), and Germany (1980).

Yet, contents of such documents should also be enforced to create a better environment and conditions for the women workforce. Concerning with both ILO Conventions, relating to Convention No. 45, while today fortunately no female labor is placed in underground work, there had been times--in sixteenth century--that it was employed in mines despite that such work were under strict control through imperial orders issued in order to prevent abuses (Caporal, 1999, p. 136). In fact today authorities should be more watchful and alert to keep women workforce out of the kind of labor that could be detrimental to her in body and soul. In Convention No. 100 it is not a secret that application do not follow and match the rule. Despite poor statistical data and the insufficient research in the area, roughly it could be said that the male labor is being paid almost 50% higher than that of the female, especially in blue-collar work. Nevertheless, against all shortcomings, Turkey still managed to be one of the first to adopt [and apply] the principles of the said Convention prior to most developed countries facing similar problems today relating to remuneration inequality between sexes (Tütek, 1998, p. 256).

In spite of some notable progress resulting from inescapable modifications in the Turkish Legal Code relating to improvements in discriminative issues pertaining to women labor, there is still much to be done in certain cases given below:

a. Hiring and Firing: While Turkish Labor Law Article 26, Paragraph 4 forbids underpayment of women in equally productive, same quality work, it does not bring in similar protective measures against discrimination in hiring--yet fortunately such protection is supplied through Turkish Union Law, Article 31, forbidding segregation between sexes in hiring and pay (Sur, 1998, pp. 167, 168). Likewise, Article 17/Ia of the same code states that the employer has the right to terminate a female worker's contract without notice at the end of her paid maternity leave.

b. Incentives Keeping Women Labor Out:

Turkish Labor Code is also criticised for being open to another arrangement that is said to keep women out of the labor market by encouraging them to leave their work following marriage (Article 14), where in such case women employees has the right to cease the agreement with the employer and collect the severance pay in a year period. This is accepted to be an other type of discriminative consideration reminding women that their place is home rather than the workplace. A similar approach is the legal arrangement relating to the earlier retirement of women. The results are clear: on national basis today while average unemployment rate is 8% that of women is 21%.

c. Sexual Harassment:

Sexual harassment is one reason for women to leave their work (Gurol, 2000, p. 237) that also could be one leading them to start their own businesses. Since 1980s women's movement has been making intensive demands for the modification of the discriminatory clauses of the Turkish Criminal Code and the underlying understanding, which treats crimes against women in the context of "Crimes Against Public Decency and Family Order." The Turkish Criminal Code differentiates [in] rape of minors, rape of majors and rape that violates virginity. In the sense that the penalty for rape is specified differentially for violation of virginity there is discrimination among women (Article 423/I). Similarly, a distinction is made regarding abduction of single versus married women, with heavier penalty for the abduction of the latter (Article 429); parallel to this, penalty is reduced for the crime if the act of abduction is committed with the intention of marriage regardless of the women's will (Article 433). Article 438 of Turkish Criminal Law, which provided for a reduced sentence for a rapist, if he injured women, was proven to be a prostitute. Fortunately, as a result of the public consensus that was generated through intensive campaigns [it] has been repealed in 1990. There is an attempt to amend Article 478 of the Turkish Criminal Law to enable legal intervention to cases of domestic violence without the formal complaint of the injured party. Articles 440 and 441 define adultery differently for men and for women (furthermore, the criminal code calls for a reduced sentence for acts of murder incited by adultery where this has important implications for violence against women) (Saygin, 1997, pp. 23, 73, 74). Recently the Constitutional Court has annulled Article 441. When doing so the Court has made direct reference to the Convention on the Elimination of Discrimination Against Woman. According to Article 90 of the Turkish Constitution, international treaties duly put into effect, carry the force of law. Legislature has one year to replace the annulled article with a new one.

d. Right of Control over Professional/Artistic Activities:

Formerly, Turkish Civil Code Article 159, Paragraph I granted the husband the right of control over the wife's professional or artistic activities, annulled in 1990 by the Constitution Court. The said article was a replicate of the one in the Swiss Civil Code adopted, which was similarly been annulled at the past.

SUMMARY AND CONCLUSIONS

Despite all prejudiced and at times intolerable approach to the would-be role and status of women in the country originating from the traditional value system, Turkish women continually managed to have an indisputable place in domestic social and economic life. To date, as supported by experience and some research, it is clear that they could cope with the turbulences and uncertainties of business world "evidently better than men through their feminine characteristics such as patience, decisiveness and insistence" (Yalkin, 1993, p. 51).). Issues relating to help women starting their own ventures had been first pioneered in 1992 (Tütek, 1998, p. 255). In the present domestic environment of working life, Turkish women apparently seem to be much attracted to entrepreneurship, building their own businesses to become their own bosses feeling the

independence by all means. This is also vindicated by official figures indicating increases in self-employment rate in women workforce from 6,5 percent in early 1990s (Ecevit, 1993, p. 19) to 9,5 percent as of April, 1998 (SIS, 1998). The service sector is the main one that the tendency and preferences in starting a new venture is focused and concentrated, much alike to other similar experiences through the globe. However, despite all ambition, efforts and strive, traditional value system dominating the social and cultural aspects of the daily life is a serious constraint limiting and downgrading the worklife activity of women, where it is possible to find the reflections of such inconveniences in the national legal code as discriminative terms regarding to female labor.

Two things seems to be basically essential for the increased participation of the Turkish women workforce both as employees and employers/self-employed: Firstly, incentives to motivate women to part in business life need to be created and enforced through government policy and programs to be supported by civil society organizations and educational bodies. Secondly discriminative terms in the Turkish Legal Code are to be removed and replaced with ones allowing equal treatment in order to build up a better environment for the presence, achievement and advance of women in working life. Incentives need to be in the form of backing and monitoring in areas such as organising, financing, advising, training, and education, depending on the qualifications and type of employment with priority in entrepreneurial attempts of women. However, earlier to facilitating the said activity through such incentives, for the efficiency and sustainability of the operation relating to the advancement of women in business life, priority should be given to the rearrangements to be accomplished in the legal sub-structure, starting with the elimination of restrictive legal forms that are gender discriminative in character in the national code system. An effort ignoring such a vital requirement will be against the sine qua non principles of the "Turkish Constitution" and the "Universal Declaration of Human Rights" for limiting the national women workforce to freely play her part both in a domestic and global environment.

REFERENCES

Bulutay, T. (1995). *Employment, Unemployment and Wages in Turkey*. Ankara: International Labor Office (ILO) and State Institute of Statistics.

Caporal, B. (1999).*Kemalizmde ve Kemalizm Sonrasında Türk Kadını-I (1919-1970). [Turkish Women in Kemalist and Post-Kemalist Era-I (1919-1970)]*. Istanbul: Cumhuriyet Newspaper Publication. (In Turkish).

Dass, P.& B. Parker (1999). Strategies for Managing Human Resource Diversity: From Resistance to Learning. *The Academy of Management Executive*, 13(2), 68-80.

De Cenzo, D.A. (1997). *Human Relations, Personnel and Professional Development.* USA: Prentice Hall.

DAI. (1995). *Supporting Women-Owned Businesses in Turkey: A Discussion of Needs, Problem, Opportunities and Strategies.* Ankara: Development Alternatives, Inc. and the Strategic Research Foundation.

GDSPW. (General Directorate for the Status and Problems of Women). (1998). *T.B.M.M. Kadının Statüsünü Araştırma Komisyonu Raporu [Report of Turkish Republic Parliament Research Commission on the Status of Women]*. Ankara: Reporter. (In Turkish)

GDSPW. (2001). *Türkiye'de Kadın 2001*. [*Women in Turkey 2001]*. Ankara: General Directorate on the Status and Problems of Women. (In Turkish).

Ecevit, Y. (1993). "Kadın Girişimciliğinin Yaygınlaşmasına Yönelik Bir Model Önerisi"[A Model Suggestion Intending the Widening of Female-Entrepreneurship]. Alpar Altınel (Ed.), Ankara: Panel on the Motivation and Support of Women to Entrepreneurship, May 25, 1993. Ankara: Ministry of State, Directorate General for the Status and Problems of Women. (In Turkish).

Gurol, M.A. (2000). *Türkiye'de Kadın Girişimci ve Küçük İşletmesi: Fırsatlar, Sorunlar, Beklentiler ve Öneriler*. [*Women Entrepreneur and her Small Business in Turkey: Opportunities, Problems, Expectations and Recommendations]*. Ankara: Atılım University. (In Turkish).

Hatten, T. S. (1997). *Small Business. Entrepreneurship and Beyond*. U.S.A.:Prentice-Hall.

Hisrich, R. D. & C.G. Brush (1989). *The Woman Entrepreneur. Starting, Financingand Managing a Succesful Business*. U.S.A: Lexington Books.

Hisrich, R.D. & Peters, M.P. (1998). *Entrepreneurship*. USA: Irwin McGraw Hill.

ILO (International Labour Organisation). (1992). *International Labour Conventions and Recommendations (1919-1991), Volume I (1919-1962).* Geneva: International Labour Office.

Neft, N. & A. D. Levine (1997). *Where Women Stand. An International Report on the Status of Women in 140 Countries 1997-1998.* New York: Random House.

OECD's Conference on Women Entrepreneurs in Small and Medium Enterprises: A Major Force in Innovation and Job Creation. Paris, 16-18 April 1997. Retrieved August 25, 2001, from http://www.oecd.org/DSTI sti/industry/act/almoro.htm.

Pablos, T.P. (1999). *Women in Mexico: A Past Unveiled*. Austin, Texas: University of Texas.

Parkin et al. (1997). *Economics*. England: Addison-Wesley.

Saygın, I. (1997). *Combined 2nd and 3rd Periodic Country Report on Turkey to the Committee on the Elimination of Discrimination Against Women (CEDAW).* (Opening Speech Addressed at the Sixteenth session of the Committee on the Elimination of Discrimination Against Women. January 17, 1997. New York). Ankara: Directorate General on the Status and Problems of Women.

SIS (State Institute of Statistics). (1998). *Household Labour Force Statistics.* Ankara: State Institute of Statistics. (In Turkish).

Starcher, D.C. (2001). Women Entrepreneurs. Catalysts for Transformation. European *Baha'i Business Forum EBBF*. Retrieved August 27, 2001, from http://www.ebbf.org/woman.htm.

Sur, M. (1998). Çalışma Yaşamında Kadının Hukuki Durumu. [Legal Status of Women in Business Life]. Zafer Gören. (Ed.), Symposium on the Equality of Different Sexes, May 17-18, 1998 (Symposium Gleichberechtigung). İzmir: Dokuz Eylül University Law Faculty. (In Turkish).

Tütek, H. (1998). Dünyada ve Türkiye'de Kadın Yöneticiler: Cam Tavan Deliniyor mu? [Women Managers in the World and in Turkey: Is the Glass Ceiling Breaking?] Zafer Gören (Ed.), Symposium on the Equality of

Different Sexes, May 17-18, 1998 (Symposium Gleichberechtigung). İzmir: Dokuz Eylül University Law Faculty. (In Turkish).

Viotti, P.R. & Kauppi, M.V. (2001). *International Relations and World Politics – Security, Economy, Identity*. New Jersey: Prentice Hall.

Yalkın, S. (1993). Esnaf-Sanatkarlar, Küçük İşletmeler ve Bunların Türkiye'deki Örgütlenmesi. [Tradesman-Craftsman and Small Business Sector and Their Organisation in Turkey]. Alpar Altınel (Ed.), Panel for the Encouragement and Support of Women to Entrepreneurship, May 25, 1993. Ankara: Directorate General on the Status and Problems of Women. (In Turkish)

Zilber, T.B. (2002). Institutionalization as an Interplay Between Actions, Meanings and Actors: The Case of a Rape Crisis Center in Israel. *The Academy of Management Journal,* 45(1), 234-254.

THE EFFECT OF GENDER WAGE GAP ON SMALL BUSINESS AND ENTREPRENEURS' PERFORMANCE

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ABSTRACT

The gender wage gap is a topic that has not only been in the news lately, but it something that will affect each of us in the working world. Our topic is the Gender Wage Gap, or differences in pay between men and women. Many studies have found that the tenure, rank, and salaries of female employees are not equal to those of men. However, few studies have considered the perception of power held by those in leadership positions in the workforce. This paper reports on a study of the differences in wage pay between women and men. It discusses the complexity of the gender-power relationship in light of the impact of sex role socialization, and men and women's balance of power in administrative positions. This paper also discusses what the Gender Wage Gap is, or what is meant by the wage gap, some causes of the wage gap, and how the wage gap looks now.

WHAT IS THE WAGE GAP

When we talk of comparing women's earnings with men's earnings, we find that no matter how we measure them, women's earnings are below those received by men. Very often men's earnings are used as the "yardstick" to measure women's, and we say women's earnings are a percentage ratio (www.inform.umd.edu). Unequal pay because of sex and race has a long history. In the 1960s, feminist activists donned "59 cents" buttons to decry the fact that women, on average, earned 59 cents for every dollar that a man earned. For generations it was legal to pay women and people of color just a fraction of what majority-group men were paid for the same job (U.S. Department of Labor, a). Federal, State and Local laws require equal pay for equal work for the same employer, but today most women work in jobs that are different from those that men do. Advocates are currently trying to change the law so that it covers jobs that may be different from men's jobs, but are still equal or equivalent (U.S. Department of Labor, a). Fair pay, or pay equity eliminates sex and race discrimination in wage-setting practices. It means equal pay for work of equal value, even when that work is different. Fair pay corrects the historical practice of paying less for work performed by women. Women may perform jobs with different duties than the jobs performed by men, but if the "male' and "female" jobs are equally valuable to the organization, they should be paid comparably (U.S. Department of Labor, a).

Under pay equity, it is no longer necessary to compare a job with another that is exactly the same. Jobs that appear to be different can still be compared if they can be shown to be equal in their

overall value, and according to the law, jobs that are equal in total value must receive equal pay. Fairness means that pay must be based on the worth of the work, not on the sex of the people who do it (U.S. Department of Labor, b). The value of work is calculated using job evaluations which rate the skill, responsibility, and effort required by a job, as well as working conditions. The total point score received by each job represents its value. The scores and salaries of jobs dominated by women and men may then be compared to determine whether work of equal value is being compensated equally. Comparisons are limited under federal law to the jobs of people working within the same establishment (www.chrc.ca). The wage-gap figure has proved to be a powerful tool, though it is less useful as a measure of discrimination. As a statistical aggregate, the wage gap is only an amalgamation of all of the wages paid to women divided by all the wages paid to men. Factors that determine wages, such as education level and concentration, field of work, and continuous time in the workforce are constant across the sexes. As it happens, such assumption is highly suspect. When a particular wage gap figure is advertised as having been corrected for such factors, this is usually only partly true.

Equal pay for work of equal-value, or pay equity, is an important part of efforts to guarantee women - and men working in female dominated jobs - a fair deal (www.chrc.ca). Equal Pay Law was introduced because of the large differences between the earnings of men and women. The salaries paid to employees in areas dominated by women - such as clerical work, nursing, and retail sales - are often low (www.chrc.ca). Unequal pay is a striking illustration of the maxim that discriminatory treatment may be no less real because it is largely unintentional. Wage levels, of course, are in no small part a function of supply and demand, on this point most of us can agree. They are influenced by a host of other factors: the traditional prestige of the job, the safety risks, the degree of physical or intellectual effort involved, special responsibilities, and so on. It is no less clear that, for a good many occupations, the sex of the workers traditionally in the field has also affected typical rates of pay. Nearly sixty-percent of American women working year-round and full-time get paid less than $25,000 per year. Over half of all women work in traditionally female jobs, like clerical worker, nurse, child care worker, cook, cleaner and librarian, most of which are relatively low-paying. Women of color are crowded into some of the very lowest paying of these jobs. Few women think their wages reflect the real value of their work (U.S. Department of Labor, a).

Low wages for female-dominated jobs are due to several factors. Partly, they reflect differences in education, physical effort, hours of work, time spent in the labor market and so on. But they also reflect discriminatory attitudes toward women and the jobs that they have traditionally held. A more general tendency to undervalue women's work also played a role. Lower pay rates for female-dominated occupations have become an accepted part of compensation systems. Secretaries may be paid less than warehouse workers and nurses less than electricians not because their jobs are worth less, but because women traditionally performed these jobs. Although attitudes toward women and women's roles have changed dramatically, undervaluing of work performed by women persists. In many workplaces, men and women doing work of equal value are still paid differently (www.chrc.ca). However, pay equity has been shown to work. Since it became federal law in 1978, approximately 70,000 employees have received equal pay increases. Equal pay has been achieved between librarians and historical researchers, kitchen workers and janitors, and nurses

and paramedics, to name just a few. Women and men working in female-dominated sectors who have had complaints resolved under the Act have been awarded an average of about $50,000 each in retroactive adjustments and $2,300 each in ongoing yearly payments (www.chrc.ca).

CAUSES OF THE WAGE GAP

While reading through the many sources that we acquired, I came to the conclusion that some of the researchers were not sure if this gap even exists any more, or if they have come to the conclusion of the wage gap itself all wrong. The researchers seem to think that there may be a discrepancy in the way the gap is figured. The apparent gender pay gap between men and women is with the implicit assumption that much of the wage difference is due to workplace discrimination. A closer examination of the data suggests that, once other relevant economic factors are accounted for, the gap narrows considerably. The pay gap between men and women virtually disappears when age, educational attainment, and continuous time spent in the workforce are factored in as wage determinants. In fact, this is neither a new phenomenon nor a product of preference programs. Economist Thomas Sowell has shown that as early as 1971, never married women in their thirties who worked continuously earned slightly higher incomes then men of the same description. In the academic world, single women who earned PhD's in the 1930's became full professors by the 1950's at slightly higher rates than their male counterparts. In addition, never married academic women earned slightly more money in some years than men of the same description. Similarly, June O'Neil has found that women between the ages of 27 and 33 who had never had a child earned 98 percent as much as men in the same demographic. But why does the difference between the average wages paid to men and women remain? Much of the answer lies in differences between the observed average characteristics of men and women (Hattiangadi & Shaffer, 1998a). Although the data compare "full-time" men and women (those working over 35 hours a week), full-time women actually work fewer hours on average than full-time men, and a smaller share of full-time women than men work over 40 hours a week. Simply correcting for hours differences increases the female/male wage ratio 81 percent. Women are also more likely to spend time away from the workforce, which lowers tenure and experience and, consequently, earnings (Hattiangadi & Shaffer, 1998b).

Also, a pay gap exists, in part, because women tend to work in different occupations than men and their wages tend to be lower in traditionally female jobs. Six out of ten women are employed in the traditional female fields of service, technical, sales and administrative support. In contrast, two-thirds of the men work as managers, operators, professionals, precision production, and craft workers. Other factors that contribute to this wage gap are differences in types of training and education, as well as length and type of work experience, racial/ethnic differences, union representation, industry of employment, and age (U.S. Department of Labor, b). Turnover data for women and men have shown higher rates for women than for men. The recent change in women's labor force participation tends to narrow the difference in turnover rates between women and men with a concurrent increase in women's earnings. It has been pointed out that length of time on the job, and the resulting seniority, increases earnings; fewer turnovers tend to lengthen the duration on

the job. Additionally, the growing tendency of employers to provide childcare benefits, flextime, and family leave policies can further strengthen women's opportunity to meet family responsibilities with fewer work interruptions (www.inform.umd.edu). Remaining differences between the wages of men and women could be attributed to statistical mismeasurement, unaccounted characteristics, discrimination, or some combination of these. But clearly it is wrong to attribute the measured "gender wage gap" solely, or even primarily, to workplace discrimination (Hattiangadi & Shaffer, 1998b).

During the 1980's and mid 90's, some progress has occurred toward closing the earnings gap between women and men. In 1983, women earned 66.7 percent as much as men, while by 1995 that figure rose to 75.5 percent, still only about three-quarters of what men earn. Some studies attribute the narrowing of the wage gap to the declining real wages of men across most educational levels, as well as women moving into higher paying management and professional occupations (U.S. Department of Labor, b). Two of the main categories where progress has been shown are labor force participation, and education. It appears that women's earnings are slowly climbing when compared with men's earnings, as women's participation in the labor force continues to move closer and closer to the pattern shown by men, and as their educational investment and occupational choices also become more similar to men's (www.inform.umd.edu). Labor force participation rate for women has increased significantly since 1960-from 37.6 percent to 60.5 percent 1997 (Hattiangadi & Shaffer, 1998a). Between 1960 and 1996, the participation rate for married women with children rose from 28 percent to 70 percent. This influx of women into the labor market has been driven by both economic and social factors. Socially, American society now accepts women in less traditional roles (www.epf.org). Since 1979, the share of women in the executive, administrative, and managerial occupation has almost doubled. Gains also have been strong in the professional specialty occupational grouping. These occupations offer relatively high-paying jobs and account for a large share of recent employment growth. Within detailed occupations, women have doubled their representation in high-paying occupations like computer systems analysis and financial management, and more than tripled their representation in law (www.epf.org).

When viewing earnings of women compared with the earnings of men between 1980 and 1991, structural changes occurred which caused women's earnings to rise steeply. There has been research conducted into the differences in earnings ratio during the 1980's between women and men, and between black and white workers. Increases in work experience were more important in raising women's earnings than the changes in education. The occupational distribution of women and men also tended to converge. The wider gap in earnings between black and white men was related to changes in industrial attachment and a change in the wage structure during the 1980s, which increased the return to education for white men. The changing economic and social climate in the U.S., accompanied by growing job opportunities, has encouraged women to pursue higher levels of education than ever before (www.epf.org). Women now earn over half of all bachelor's degrees and almost 40 percent of all PhDs (Hattiangadi & Shaffer, 1998a). Historically, women have had lower levels of educational attainment than men. However, the rapid educational gains by women have significantly closed this gap. By 1997, nearly the same share of working women and men had completed four or more years of college. In fact, accounting for the differential levels of educational attainment between men and women does little to narrow the gender wage gap - women with four

years of college or more earned 75 percent as much as men with similar levels of educational attainment in 1996 (www.epf.org). But although women's levels of educational attainment are now similar to men's, they are likely to choose different fields of study. In 1994, 12.7 percent of bachelor's degrees earned by women were in education (compared to 4.9 percent for men), and only 1.9 percent were in engineering (compared to 12.5 percent for men) (Hattiangadi& Shaffer, 1998b).

WHERE IS THE WAGE GAP NOW - CONCLUSION

Women around the world have achieved higher levels in education than ever before and today represent more than 40 percent of the global workforce. Yet their share of equality and management remains unacceptably low, with just a small proportion breaking through the glass ceiling. The difference between women and men's earnings has gradually been narrowing, but there are still some countries in the world where women's averages are not equal to those of men. The size of the wage gap, however, varies enormously from one country to the next. Even within the same country there may be a vast difference between urban and rural. This is an issue that women are against because they do not see a reason why they should not get paid the same amount as any man in the same position. Increasingly, many employers realize that if they don't increase the pay for predominately female jobs, they can no longer attract and retain a skilled work force. Many of the fastest growing jobs in the economy are predominately female jobs, and increasing numbers of women are entering better-paid, non-traditional jobs (U.S. Department of Labor, a).

Evidence suggests that when most relevant economic factors are accounted for, the gender wage gap narrows. In 1980, the wage gap between men and women was 41 cents to the dollar. Today, that gap has narrowed to 26 cents (www.epf.org). Employers' continuing efforts to provide more training and promotion opportunities for women will help to diminish the difference between men and women's earnings. Employers also appear to recognize the need to help families balance conflicting needs. The earnings gap should continue to narrow as women work more hours in the week, spend more years at paid work in their lifetimes, continue to increase their educational investment, widen their occupational choices, and equal opportunity becomes a reality (www.inform.umd.edu).

REFERENCES

Canadian Human Rights Commission www.chrc.ca "Equal Dollars Make Good Sense"

Fact & Fallacy Employment Policy Foundation www.epf.org "Where's My 26 Cents?" Choices Explain Gender Wage Gap June 1998

Hammonds, K. H. (1998). You've come a short way baby, *Business Week*, November 23, 82.

Hattiangadi, A. U. & T. Shaffer. (1998a). Employment Policy Foundation www.epf.org Equal pay day observances may not capture significant progress by women, April 28.

Hattiangadi, A. U. & T. Shaffer. (1998b). Employment Policy Foundation www.epf.org President Clinton mischaracterizes the reasons for the gender pay gap, June 12.

Powell, G. N. (1998). *Women and Men in Management* Sage Publications, 208.

Public Interest, (1996). Summer Issue 124, 27.

Schmittroth, L. (1995). *Statistical Record of Women World Wide* 3rd Edition, New York: Gale Research Inc.

U.S. Department of Labor (a) http://gatekeeper.dol.gov Worth more than we earn: Fair pay for working women

U.S. Department of Labor (b) http://gatekeeper.dol.gov The women's bureau fair pay clearinghouse

Neft, N. & A. D. Levine. (1997-1998). Where women stand.

Work Life Report (1996). Volume 10, Issue 1, 14.

http://www.inform.umd.edu (Several sections within this Website)

MY LOVE AND MY BUSINESS - EXPECTATION AND REALITY OF COUPLES WORKING TOGETHER IN A NEW VENTURE CREATION: THE ENTREPRENEURS' PERCEPTION

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ABSTRACT

Starting and managing a family business presents challenges and risks for entrepreneurs and their spouses according to previous studies. How to balance family life and business life becomes a critical issue to develop a healthy dual working relationship. This is a report of a national survey of retail and service small businesses. Entrepreneurs revealed their perceptions regarding the impact of a new venture creation on business and family relationships. The number of full-time employees and years in the businesses were most significantly related to spouses' decisions to work in the business, while other demographic information did not seem to influence spousal involvement. Interestingly those spouses who worked in the business were also more likely to have other jobs. Married entrepreneurs showed very consistent assessments on their expectations and reality associated with new venture creation related to financial situation, family relationship, and business development, with or without spouses working in the businesses. While some entrepreneurs did not have enough time for themselves and for their family, few believed that a dual working relationship actually enhanced their marriage. Although some entrepreneurs agreed that new venture creation had impact on the family relationship, the majority of them believed that they would start again and that their family would support them if they decided to start the business again.

INTRODUCTION

Shannon and Paul Entin, wife and husband proprietors of FitnessLink Inc, a health and fitness Internet site, have found that it is not easy to work with a spouse (Schatz, 2000). They have difficulties communicating effectively when running the business together, and it is much easier to argue with a spouse than it is a neutral business partner. What Shannon and Paul have experienced is not uncommon among entrepreneurs whose spouse is involved in the business. The statistics compiled by the Small Business Administration show a significant increase in the number of family business establishments in the United States over the past ten years. Among all the family businesses, entrepreneurs face different challenges in decision-making process with or without spouse involved in the businesses. Numerous studies and observations have discovered unique characteristics of entrepreneurs, such as willingness to take risks, certain visions for their future, desire to be their own boss, creativity and motivation, and optimism and enthusiasm about starting the businesses. If the entrepreneurs work alone, they put up their money and operate their own

businesses. They enjoy the success and struggle in running the business based upon personal preference, independence, and self-control. However, the situation is somewhat different when a spouse is also working in the business. The meaning of the business changes from "MY business" to "OUR business". Much of the literature reviewed, discussed in a later section, explored the advantages and disadvantages of couples working in the business together. Some have argued that the marriage intimacy interfered with professional development, while others supported the dual working relationship that might enhance personal growth.

Several researchers have examined the characteristics of the entrepreneurs, the changes in relationships among family business participants, the changes in the business given family involvement, and challenges confronting the couples when working in business together. Several case studies also present examples of problems for dual working relationship in family business and possible approaches to prevent family conflicts. However, there is limited information or research to discover the mystery related to new venture creation with or without the spousal involvement. It is not clear how dual working relationships impact entrepreneurs' perceptions associated with business start-ups. One would wonder how expectation and reality interact in dual working relationships before and after starting the new venture. Some questions have not been explored in previous literature related to "with or without the spouse working in the business", such as the impact on entrepreneurs' expectations of the new venture, family issues, and financial situation. This research was designed to explore the expectations and realities of starting new ventures on entrepreneurs and their families from the perspective of the entrepreneurs, especially focusing on the comparison between with or without spouse working in the business. This study will provide a conceptual as well as an empirical framework to examine whether dual working relationships make any difference in expectation and reality associated with new venture creation, their financial situation, and family relationships. The results of this study will benefit other researchers or professionals who work with entrepreneurs to understand personal and family issues involved in start-ups. Some helpful consultation strategies could be derived that will help entrepreneurs and their family members balance life between love and business. A brief literature review is presented in the next section, followed by the description of the sample and the methodology, results and implications, finally the summary and conclusions.

REVIEW OF THE LITERATURE

Entrepreneurs often start new ventures based on their own assessment of the situation. While spouses are sometimes consulted, their assessment of the venture potential for themselves and their children is usually based on their feelings toward the entrepreneurs. There was very limited qualitative or quantitative research related to expectations and reality of starting a new venture and the impact on entrepreneurs or their families. Some literature reported characteristics of entrepreneurs, motivations for starting businesses, family involvement in new venture creation, and challenges related to working with spouse in the businesses. Some issues deserve further analysis related to whether or not the spouse works in the business, such as impact on entrepreneurs' perspective about new venture creation and potential changes in family relationships.

Characteristics and Motivation of Entrepreneurs

Many entrepreneurship and small business management textbook authors discuss the characteristics and motivation of the entrepreneurs (Stevenson, Grousbeck, Roberts & Bhidé, 1999; Longenecker, Moore & Petty, 2000; Scarborough & Zimmerer, 2000; Bhidé, 2000; Bygrave, 1994; Kuratko & Hodgetts, 1998; Vesper, 1996; Hodgetts & Kuratko, 1995; Timmons, 1999; Jennings, 1994; Lambing & Kuehl, 1997). The discussions of characteristics mention one or more of the following: high achievement drive, action oriented, internal locus of control, tolerance for ambiguity, moderate risk taking, commitment, optimism, opportunistic, initiative, independence, commitment/tenacity or some form of one or more of these. The motivation for business start-ups often revolves around the opportunity to gain control over personal lives/independence, to get profits/financial rewards, to enjoy what individuals are doing, to achieve personal goals and recognition, and to make a difference/contribute to society. Although previous studies discussed the uniqueness of the entrepreneurs' personality, there was not enough information to link entrepreneurs' behavior to spousal involvement in the business.

Issues Relating to Entrepreneurs And Their Families in New Venture Creation

Many authors discussed the impact of starting a new venture on the entrepreneur while only a few discuss the impact on their family. Some discussed family involvement and implications before starting, in the process of starting, and the results of starting. Bygrave (1994) indicated that family responsibilities played an important role in the decision whether to start a company. It would be a much harder decision when a person was 45 and married, had teenage children preparing to go to college, a hefty mortgage, car payments, and a secure, well-paying job. Sometimes family members made minor sacrifices for the good of the business including long hours taken by the business. Occasionally, however, the clash between business interests and family interests was so persistent or so severe that entrepreneurs must decide which comes first. (Longenecker, Moore & Petty, 2000) Quality family relations were influenced by uncertain income, risk of losing family investments, long hours and hard work, and high stress (Scarborough & Zimmerer, 2000; Dunn & Liang, 2001). Hodgetts and Kuratko (1998) mentioned that starting a new venture used much of the entrepreneur's energy and time. Entrepreneurs who were married, and especially those with children, exposed their families to the risks of an incomplete family experience and the possibility of permanent emotional scars. Several researchers also concluded that business owners had to face the fact that entrepreneurship and parenthood did not match in perfect harmony, and the pressure of female entrepreneurs was evolving dramatically (Page, 1999; Davies, 1999). Although previous literature discussed and examined the interactions between entrepreneurs and family members, it is still a puzzle how spousal involvement in the business changes the business and family relationships from the entrepreneurs' perception.

Arguments Related to Dual Working Relationships in Business

A document released by the U.S. Small Business Administration discussed the challenges in managing a family business (U.S. Small Business Administration, MP-3). When family members work together, emotions might interfere with business decisions. Several studies provided some insight into the risks for entrepreneurs who tried to include their spouses in the businesses (Scroggins, 1996; Nelton, 1996; Lieberman, 2000; Landes & Frankenberg, 1998; Powell & Foley, 1997; Bures, et al., 1995-1996). These studies reported potential challenges of having a spouse work in the business, such as disagreement associated with decision hierarchy, who had more control, lack of quality time together, lack of financial confidence, stress and pressure from both family and business responsibilities, and diminished support from each other. Freedman (1999) indicated that business owners had to take more time to strike a balance between their business and their family, especially when spouses and children are involved in the business. Similarly, Beayprez (1998) concluded that longer hours at the office put many executives and managers on the road to burnout, and definitely affected personal lives and health. Other researchers developed various strategies to assist couples working in the business together (Schatz, 2000; Jaffe, 1997, Nelton, 1996; Srikonda, 2000; Lieberman, 2000; Lobel, Googins & Bankert, 1999; King, 1998; Landes & Frankenberg, 1998; Stewart & Danes, 2001; Masuo, et al., 2001, Rowthorn, 1998; Hoover & Hoover, 1999). Working couples in the same businesses could avoid or alleviate conflicts by separating the business parts of their relationship from home concerns, designing work agreements prior to barging into new ventures, learning to cope with both business and family demands, sharing the passion if they succeed and the tears if they struggle, and taking time off from the business relationship to enjoy the marriage relationship. Setting up a balanced family plan accompanying the business plan could clarify confusion and reduce conflict in dual working relationships. Separate paychecks, well defined management structure, workload, specific responsibilities in business and family, and time distribution between business and family lives are a few key factors mentioned in previous studies to sustain a positive experience for couples working in the same business. Several researchers did point out that couples working together were not detrimental to the pursuit of one's career (Dichter, 1996). Having a spouse work as a partner in the business brought intangible benefits that enhanced the way business was conducted, improved confidence for couples to make long-term investments in their relationship, led to higher spousal support and job satisfaction, and injected a more personal approach toward work (Ditchter, 1996; Masuo, 2001; Rowthorn, 1998; Hoover & Hoover, 1999; Bures, et al., 1995-1996).

Although previous studies have covered a wide range of discussion related to family business as well as issues related to couples working together, it is not clear how entrepreneurs' perception toward business development related to spousal involvement. Does it make any difference for entrepreneurs' expectations related to the new venture creation when their spouses are involved? What are the impacts on business and family relationship before/after creating and running a new venture from the entrepreneurs' perception if spouses are involved? How do their spouses reflect on the business and family development from entrepreneurs' perception? These are a few questions that this research attempts to examine. This research will also fill the gaps in previous studies to further examine how entrepreneurs' expectation coincides with the reality and the family responses for

start-ups, with or without spousal involvement in the process. From entrepreneurs' perception, two categories of the hypotheses have been developed to test (1) whether there is any difference in expectations associated with new venture creation given spousal involvement; and (2) whether there is any impact on business development and family relationships as a result of creating and running the business with spousal involvement.

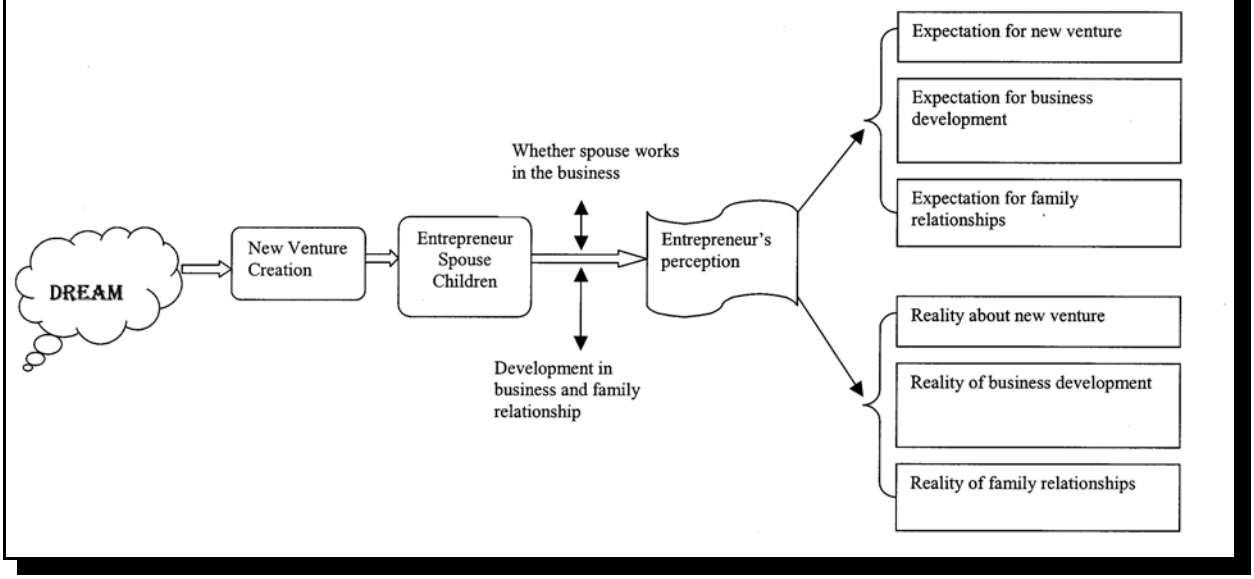
METHODOLOGY

A sequential probability sample of 1036 retailer and service firms with fewer than fifty employees that had been in the database less than five years was drawn from the American Business Disc, Second Edition, 1999. A mail questionnaire was developed, pre tested, and revised to collect the information needed for this study. The questions in the survey covered demographic information (gender, age, location of the business, number of employees, etc) as well as perceptive information (expectation and reality relating to new venture creation for entrepreneurs and family members). The survey was designed to be answered by the business owners only. The answers reflected the owner's personal view, regarding his/her personal perspectives for spouse and children. There was no expectation that spouses or children would answer the questions directly. It would be preferred to ask both entrepreneur and spouse to respond to the same survey, so that both sides of the story could be revealed. However the personal feelings and interactions may influence the couples when answering questions about how they evaluate each other. There are also technical constraints and difficulties to require entrepreneurs and their spouses to respond simultaneously, such as getting access to the spouse, effective response time and response rate, postal and photocopy expenses, and labor requirement to compile the data. There were 1036 questionnaires mailed, 158 were returned as undeliverable. One hundred and six surveys were returned from the first mailing. A follow up mailing and telephone campaign resulted in 29 additional responses. These were not different from the original returned questionnaires. The 135 completed questionnaires represent a 15 percent response rate. Of the 135 completed questionnaires, 111 were married and responded to the question regarding the spouse working in the business. Those without spouses or children were not expected to respond to those questions related to the family situation. This study is based on those entrepreneurs who were married.

A conceptual framework has been developed for this study to link expectations and responses to new venture creation for entrepreneurs and families (Figure 1). The decision-making process in new venture creation involves two learning cycles: before starting the new venture and after running the business. A dream idea usually motivates entrepreneurs to start new ventures and ask family members to be involved, if they are willing. The business process interacts with the family concerns, especially when spouse and children are involved. How the business and family develop directly or indirectly relate to how spouses work between business and family. While planning and engaging in business activities, entrepreneurs begin to understand the differences between "expectation" and "reality". Entrepreneurs reflect on this new venture experience, which leads to a learning process that entrepreneurs will review and re-evaluate their decisions. Entrepreneurs' perception about this learning experience may be positively or negatively related to spousal involvement in the business

issues. Different personal reflections might influence entrepreneurs' assessment later if they were to start another new venture.

Figure 1: A Conceptual Framework for Assessing Entrepreneurs' Perception on Business and Family Relationship Relating to Spousal Involvement



Hypothesis Tests for Two Categories - Spouse Works in Business Versus Spouse Does Not Work in Business

Multiple hypothesis tests were conducted to test for significant differences between categorical responses (spouse work in the business or not - either full-time or part-time). Two sets of the hypothesis test were used to verify (1) demographic information related to spousal involvement in the businesses and (2) expectations and reality regarding business development and family relationship from entrepreneurs' point of view given spousal involvement. Demographic information included years in the business, business type, location of the business, age of the family members, gender of the entrepreneurs, and estimated annual sales. Variables associated with expectations and reality responses included business process, financial situation, family attitude, and impacts on family relationship. Since responses for the questions were revealed by level choices (for example, annual sales less than $500,000 or higher than $500,000) or preferences (agree or disagree), categorical data analysis is more appropriate to compare the impacts of spousal involvement on business and family relationship from the entrepreneurs' perception. Two instruments were applied to test the differences in two categories (spouse work in the business versus spouse does not work in the business): Chi-square test and Gamma test. Both Chi-Square test and Gamma test could be applied to answer the question when analyzing ordinal data: "does Y tend to increase as X increases?" (Agresti, 1990). While Chi-Square test statistic uses the proportion of the responses in each category to compare the differences, Gamma test statistic uses the number of

responses in each category to compare the differences. There is usually an assumption about normally distributed population for applying Chi-Square test. When applying Gamma test procedure, there is no assumption about the probability distribution for the population. When sample size is large enough, the test results from both procedures should reach the identical conclusions. P-values were calculated for both of the tests in all categories.

Logistic Regression Model

Two sets of the logistic regression models were applied to verify the linkages between spousal working in the business and other variables. The dependent (response) variable was whether spouses worked in the business (1 - spouse working in business, 0 - spouse does not work in the business), while the independent (explanatory) variables were demographic information in one set, and entrepreneurs' responses towards business and family development in the other set (Table 1). Logistic regression represents a curvilinear relationship between the response variable and the expected values of the response variables. (Agresti, 1990) The coefficients of the logistic regression model estimate the odds of making certain responses versus the baseline scenario (usually represented by 0 in the response variable), given the values of explanatory variables. In this study, the logistic regression was used to (1) evaluate the odds for selected demographic variables related to spousal involvement in the businesses, and (2) evaluate the odds of the spousal involvement in the business related to entrepreneurs' expectations versus reality as a result of new venture creation. The Wald test statistic was calculated to see if any explanatory variable significantly influences the response variable.

SUMMARY OF THE SAMPLE INFORMATION

Responses were received from 40 states from California to Maine and from Texas to Minnesota. Rural entrepreneurs represented 52.3 percent of the responses. Seventy-nine percent of the respondents had less than 5 fulltime employees and 86.3 percent had less than 5 part time employees. Most of the entrepreneurs were under fifty years old (67.9 percent), and 74.7 percent of those married had spouses 50-year-old or younger. The age of the oldest and youngest child, among respondents with children, was 20 years or younger. Eighty percent were currently married (including separated) at the time of the survey, 6.2 percent were divorced, and 10.8 percent were not married. Married respondents had 33.3 percent of their spouses who worked full-time in the business, 35.1 percent had spouses who worked part-time in the business, and 31.5 percent of the spouses did not work in the business. Major sources of funds used to start the business included personal savings (32.4 percent), family savings (12.6 percent), loans (22.5 percent). Significantly, over 44 percent used personal or family savings. Discussions about "spousal involvement" in the following sections include spouses who work in the business full time and part time.

Table 1. Variables in the Logistic Regression
Logistic Regression Using Demographic Information

	Name	Definition
Response variable	SPOUW	Spouse work in business (1) Spouse does not work in business (0)
Explanatory variables	LOCATION	Rural (1) Urban (0)
	TYPE1	Retail (0) Eating and Drinking (1) Service (2)
	LEGAL1	Sole Proprietorship (1) Others (0)
	FULLEMP	Numbers of full time employees
	HOWLONG	Number of years in the business
	SPOUT	Spouse work outside of the business (1) Spouse does not work outside (0)
	OLDCHILD	Age of the oldest child
Logistic Regression Using Entrepreneurs' Perception		
Response variable	SPOUW	Spouse work in business (1) Spouse does not work in business (0)
Explanatory variables	UP	My business is up and running well. Agree (1) Disagree (0)
	HARDER	Starting a business has been harder than I expected. Agree (1) Disagree (0)
	INCGOOD	My family income was good before starting the business. Agree (1) Disagree (0)
	SPOENTHU	My spouse was enthusiastic about the new venture before starting. Agree (1) Disagree (0)
	CHIENTHU	My children were enthusiastic about the new venture before starting. Agree (1) Disagree (0)
	HAPPIER	I expect to be happier in starting the business. Agree (1) Disagree (0)
	FAMIBETE	In starting the business, my family thought we would be better off financially. Agree (1) Disagree (0)
	RESPOHAP	As a result of starting the business, my spouse is happier. Agree (1) Disagree (0)
	RESPBETT	As a result of starting the business, my spouse thinks our family is better off financially. Agree (1) Disagree (0)
	NOTIMESP	As a result of starting the business, I have not been able to spend as much time with my spouse as before. Agree (1) Disagree (0)
	RELATSPO	As a result of starting the business, my relationship with my spouse is strained. Agree (1) Disagree (0)
	MARRIAGE	Effects on Marriage after starting the business Divorced (0) Separated (1) Estranged (2) No Change (3)

DEMOGRAPHIC VARIABLES AND SPOUSAL INVOLVEMENT

Table 2 to Table 15 summarizes the findings about demographic information related to spousal involvement from the sample. Among spouses who worked in the business, approximately 2/3 was wives while husbands showed less tendency to work in the businesses (Table 2). It is possible that the husbands of female entrepreneurs are more likely to have other jobs, and wives of

male entrepreneurs have higher tendency to help out in the businesses. However, it seems that the gender of the entrepreneurs does not significantly influence the spouses' decision to work in the businesses. Spousal involvement was much stronger for businesses established less than ten years (Table 3). Interestingly, more spouses seemed to work in younger businesses (in business less than 5 years). However, there was no statistically significant relationship between years in businesses and spousal involvement. A majority of the businesses had less than five full-time or part-time employees, and these businesses probably relied on spouses working in the businesses to substitute for hired labor (Table 4 and Table 5). There are some cost advantages to spouses working in businesses such as tax deduction, savings on employees' compensation, savings on insurance, and flexible working relationship. Especially for those businesses with less than 5 full-time employees, the spouses seemed to have a significantly higher tendency to work in the business. For those spouses working in the businesses, 36 percent also work outside the businesses and 64 percent of them only work in the businesses (Table 6). For spouses who do not work in the businesses, only 17% of them do not have any job. It is clear that the majority of the spouses in family businesses work in the businesses or with other employers, and some of them might have more than one job.

Table 2. Percentage of Spouses Working in the Business by Entrepreneur's Gender

Gender	Spouse Works	Spouse Does not Work	P-value for Chi-Square Test	P-value for Gamma Test
Female	38.2	37.1	.918	.918
Male	61.8	62.9		
Total	100.00	100.00		
Number of total responses	76	35		

Table 3. Percentage of Spouses Working in the Business by Years in Business

Years in Business	Spouse Works	Spouse Does not Work	P-value for Chi-Square Test	P-value for Gamma Test
<5 years	51.3	52.9	.014**	.689
6-10 years	30.3	11.8		
11-15 years	2.6	17.6		
>15 years	15.8	17.6		
Total	100.0	100.0		
Number of total responses	76	34		

* indicates significant at 10% significance level.
** Indicates significant at 5% significance level.
The same indications are followed for all the tables.

Apparel and accessories businesses seemed to have more spouses working in the businesses, compared to eating and drinking, flowers and gifts, services, automotive, and other (Table 7). Whether the business was in urban or rural area did not seem to significantly relate to spousal involvement in the businesses (Table 8). For those businesses without spouses working in the businesses, over one-half of them were in urban area. However there was a tendency towards more spouses working in rural businesses than in urban businesses. Labor markets in rural areas versus urban areas might influence spouses' decisions to work in the family businesses. Spouses of rural entrepreneurs tend to be more involved in the family business due perhaps to insufficient labor supply and/or a lower wage rate if spouses work for others. Urban enterprises would have better opportunities to find qualified employees, and spouses have better opportunities to find other jobs in the market. Approximately 57.9 percent of the businesses with spouse working in the businesses were in the Eastern region, while 51.4 percent of the businesses not having spouse working in the businesses were also in the Eastern region (Table 9). Location of the business in different regions seems to have no impact on spousal involvement in the businesses.

Table 4. Percentage of Spouses Working in the Business by Number of Full-time Employees

Full-time Employees	Spouse Works	Spouse Does not Work	P-value for Chi-Square Test	P-value for Gamma Test
Under 5	85.3	65.6	.062*	.036**
5-10	8.0	15.6		
11 and over	6.7	18.8		
Total	100.0	100.0		
Number of total responses	75	32		

Table 5. Percentage of Spouses Working in the Business by Number of Part-time Employees

Part-time Employees	Spouse Works	Spouse Does not Work	P-value for Chi-Square Test	P-value for Gamma Test
Under 5	88.6	81.3	.225	.386
5-10	8.6	18.8		
11 and over	2.9	-		
Total	100.0	100.0		
Number of total responses	70	32		

Entrepreneur's age, spouse's age, and children's age related to whether the spouse worked in the business are shown in Table 10 to Table 13. For all the businesses with spouse working in the businesses, the majority (80 percent) of the entrepreneurs as well as their spouses were over 40 years of age. Children's age did not seem to directly impact on spouses' decision to work in the business.

Only a small proportion of the children were involved in the business as full-time employees, whether or not spouses worked in the businesses (Table 14). For those businesses with spouse working in the businesses, children seemed to be more likely to work in the businesses (full time or part time). A majority of the children worked in the business part-time. Children seemed to be less likely to work in the businesses if spouses did not work in the businesses. Several reasons could explain why children were not involved in the business: (1) they realized the challenges and risks involved in the process and were not willing to take the responsibilities; (2) they might be intimidated by the process and preferred to work for others; (3) they might earn better income by working for others; (4) they may not be interested in the family business due to parents' experiences; or (5) their parents did not need or want them to work in the business.

Business annual sales showed an interesting impact on spousal involvement (Table 15). Approximately 2/3 of the spouses worked in those businesses with annual sales less than $500,000. Smaller businesses seemed to need more help from the spouses. Similarly, more spouses did not work in the businesses for those businesses with annual sales less than $500,000. This implied another side of the issue for spouses - when the sales were very low, spouses might need to find other jobs to supplement family income. There was no significant difference between business annual sales and spousal involvement in the businesses.

Table 6. Percentage of Spouses Working in the Business by Spouse Works Outside the Business

Spouse Works Outside	Spouse Works	Spouse Does not Work	P-value for Chi-Square Test	P-value for Gamma Test
Yes	36.0	82.4	.000**	.000**
No	64.0	17.7		
Total	100.0	100.0		
Number of total responses	75	34		

Table 7. Percentage of Spouses Working in the Business by Type

Type Business	Spouse Works	Spouse Does not Work	P-value for Chi-Square Test	P-value for Gamma Test
Eating and Drinking	19.7	22.9	.066*	.625
Automotive	10.5	8.6		
Apparel and Accessories	23.7	5.7		
Flowers, Gifts and Related	14.5	20.0		
Services	10.5	28.6		
Others	21.1	14.3		
Total	100.0	100.0		
Number of total responses	76	35		

Table 8. Percentage of Spouses Working in the Business by Rural or Urban				
Rural or Urban	Spouse Works	Spouse Does not Work	P-Value for Chi-Square Test	P-value for Gamma Test
Rural	55.3	45.7	.349	.349
Urban	44.7	54.3		
Total	100.0	100.0		
Number of total responses	76	35		

Table 9. Percentage of Spouses Working in the Business by Region				
Region	Spouse Works	Spouse Does not Work	P-value for Ch-Square Test	P-value for Gamma Test
West	17.1	20.0	.816	.536
Central	25.0	28.6		
East	57.9	51.4		
Total	100.0	100.0		
Number of total responses	76	35		

Table 10. Percentage of Spouses Working in the Business by Entrepreneurs' Age				
Age of the Entrepreneur	Spouse Works	Spouse Does not Work	P-value for Chi-Square Test	P-value for Gamma Test
Under 40 years old	20.0	11.8	.569	.374
40-50 years old	49.3	52.9		
Over 50	30.7	35.3		
Total	100.0	100.0		
Number of total responses	75	34		

Table 11. Percentage of Spouses Working in the Business by Spouses' Age				
Age of Spouse	Spouse Works	Spouse Does not Work	P-value for Chi-Square Test	P-value for Gamma Test
Under 40 years old	29.7	15.2	.058*	.749
40-50 years old	41.9	66.7		
Over 50	28.4	18.2		
Total	100.0	100.0		
Number of total responses	74	33		

Table 12. Percentage of Spouses Working in the Business by Oldest Child's Age				
Age of Oldest Child	Spouse Works	Spouse Does not Work	P-value for Chi-Square Test	P-value for Gamma Test
10 or younger	14.1	18.5	.666	.905
11-20 years old	42.2	33.3		
21-30 years old	31.3	40.7		
Over 30	12.5	7.4		
Total	100.0	100.0		
Number of total responses	64	27		

Table 13. Percentage of Spouses Working in the Business by Youngest Child's Age				
Age of Youngest Child	Spouse Works	Spouse Does not Work	P-value for Chi-Square Test	P-value for Gamma Test
10 or younger	37.7	36.4	.92	.905
11-20 years old	36.1	40.9		
21-30 years old	24.6	22.7		
Over 30	1.6	0.0		
Total	100.0	100.0		
Number of total responses	61	22		

Table 14. Percentage of Spouses Working in the Business by Whether Children Work in the Business				
Children Work in Business	Spouse Works	Spouse Does not Work	P-value for Chi-Square Test	P-value for Gamma Test
Full-time	7.9	10.3	.306	.304
Part-time	44.4	27.6		
No	47.6	62.1		
Total	100.0	100.0		
Number of total responses	63	29		

EXPECTATIONS AND REALITY IN DUAL WORKING RELATIONSHIP: ENTREPRENEURS' PERCEPTION

Running a successful family business is a multi-dimensional task. Entrepreneurs with a spouse and children need to attend to business issues and to their family life. Sometimes it is a problem for entrepreneurs to balance business and family affairs, especially when spouse and/or children are involved in both activities. How would an entrepreneur assess the business development

and family interaction in the process of new venture creation? This survey included questions for entrepreneurs to reveal their perception regarding both family and business issues, with or without spousal involvement. Some questions relate to the expectations of the business processes, sales, profits, and family expectations. Other questions relate to the reality after the business established, such as family reactions, family time spent together, and changes in the relationship with spouse and children. Table 16 summarizes the entrepreneurs' experience and the perception of entrepreneurs of their spouse and children's experiences as a result of starting a business.

Table 15. Percentage of Spouses Working in the Business by Annual Sales

Annual Sales	Spouse Works	Spouse Does not Work	P-value for Chi-Square Test	P-value for Gamma Test
Less than $500,000	67.1	70.6	.717	.714
$500,000 +	32.9	29.4		
N	76	34		

Over 80 percent of the entrepreneur's agreed that their business was up and running well with or without their spouse working in the business. A majority of entrepreneurs also agreed that their income was good before starting the business and sales were higher than expected regardless of whether or not their spouses worked in the business. Entrepreneurs with spouses working in the business were more likely to experience lower profits. A significant proportion of the entrepreneurs admitted that starting the businesses took longer and was harder than expected, especially those without spouse working in the businesses. Over one-half of the entrepreneurs did not agree that their expectation was too optimistic with or without spouse working in the business. Most of the entrepreneurs felt that their spouses and children were enthusiastic about the new venture. However, when asked about personal and family feelings towards the new venture, there were statistically significant differences. It seems that entrepreneurs working with their spouse in the businesses are more likely to expect their family to be happier in the new venture creation process. About eighty percent of the entrepreneurs expected to be better off financially, especially for those who did not work with spouses. A higher percentage of the entrepreneurs working with their spouse felt that their spouse expected to be better off financially. If the spouse were willing and enthusiastic about the business idea, it would be more likely for the spouse to be involved in the businesses. From entrepreneurs' perspective, the spouse would be more likely to engage in the business adventure if they had similar expectations about financial goals or family happiness.

Did dual working relationship improve the family relationship as well as business development? Fewer entrepreneurs who worked with spouse agreed that they were actually happier. Entrepreneurs whose spouse did not work in the businesses were more likely to be happier. Entrepreneurs also felt that their spouse would be happier if they worked in the business, but this percentage was much less than entrepreneurs expected. Higher expectations among those whose spouses worked in the business might result in a negative impact if the business process were not as successful as expected. More entrepreneurs felt that their children were likely to be happier if the spouse did not work in the business. Since the majority of the children in the sample were

younger than 20 years of age, it was possible that children needed more attention from the spouse. It would be easier for the spouse to take care of children when not working in the businesses. However this does not imply that the spouse does not work at all. Some spouses had other jobs as indicated earlier, but entrepreneurs in this sample feel that their children were more likely to be happier if the spouse does not work in the family businesses.

Table 16. Percentage of Entrepreneurs' Perception on Business and Family Relationship Development Associated With Spousal Involvement

		Spouse Works	Spouse Does not Works	P-value for Chi-Square Test	P-value for Gamma Test
Business up and running well	Agree	84.2	85.7		
	Disagree	15.8	14.3	.838	.836
	N	76	35		
Sales higher than expected	Agree	60.5	58.8		
	Disagree	39.5	41.2	.866	.867
	N	76	34		
Profits higher than expected	Agree	32.9	44.1		
	Disagree	67.1	55.9	.258	.267
	N	76	34		
Starting harder than expected	Agree	73.7	74.3		
	Disagree	26.3	25.7	.947	.946
	N	76	35		
Starting took longer than expected	Agree	64.0	74.3		
	Disagree	36.0	25.7	.284	.267
	N	75	35		
Expectations too optimistic	Agree	43.4	45.7		
	Disagree	56.6	54.3	.821	.821
	N	76	35		
My income was good	Agree	85.1	80.0		
	Disagree	14.9	20.0	.500	.518
	N	74	35		
Spouse was enthusiastic	Agree	76.7	76.5		
	Disagree	23.3	23.5	.978	.978
	N	73	34		
Children were enthusiastic	Agree	70.9	59.1		
	Disagree	29.1	40.9	.317	.333

Table 16. Percentage of Entrepreneurs' Perception on Business and Family Relationship Development Associated With Spousal Involvement					
		Spouse Works	Spouse Does not Works	P-value for Chi-Square Test	P-value for Gamma Test
	N	55	22		
Expected I would be happier	Agree	77.6	60.6		
	Disagree	22.4	39.4	.067*	.084
	N	76	33		
Expected family to be happier	Agree	73.0	54.8		
	Disagree	27.0	45.2	.070*	.082
	N	74	31		
I am happier	Agree	64.5	70.6		
	Disagree	35.5	29.4	.530	.523
	N	76	34		
Spouse is happier	Agree	50.0	44.1		
	Disagree	50.0	55.9	.568	.567
	N	76	34		
Children are happier	Agree	52.4	64.0		
	Disagree	47.6	36.0	.322	.314
	N	63	25		
I Expected to be better off financially	Agree	80.0	84.8		
	Disagree	20.0	15.2	.550	.533
	N	75	33		
I am better off financially	Agree	46.1	54.3		
	Disagree	53.9	45.7	.420	.419
	N	76	35		
Family expected better off financially	Agree	79.2	70.6		
	Disagree	20.8	29.4	.332	.350
	N	72	34		
Spouse thinks better off	Agree	48.6	55.9		
	Disagree	51.4	44.1	.484	.483
	N	70	34		
Children think better off	Agree	58.6	63.6		
	Disagree	41.4	36.4	.683	.679

Table 16. Percentage of Entrepreneurs' Perception on Business and Family Relationship Development Associated With Spousal Involvement

		Spouse Works	Spouse Does not Works	P-value for Chi-Square Test	P-value for Gamma Test
	N	58	22		
Don't have time for myself	Agree	85.5	62.9		
	Disagree	14.5	37.1	.007**	.014*
	N	76	35		
Less time for spouse (n=115)	Agree	56.6	61.8		
	Disagree	43.4	38.2	.610	.608
	N	76	34		
Less time for children (n=105)	Agree	62.1	57.1		
	Disagree	37.9	42.9	.651	.654
	N	66	28		
Relationship with spouse strained	Agree	41.3	35.3		
	Disagree	58.7	64.7	.550	.545
	N	75	34		
Relationship with children strained	Agree	27.7	17.2		
	Disagree	72.3	82.8	.276	.245
	N	65	29		
Had no effect on my marriage	Agree	45.2	47.1		
	Disagree	54.8	52.9	.858	.858
	N	73	34		
Would start again	Agree	72.0	76.5		
	Disagree	28.0	23.5	.625	.617
	N	75	34		
Family would support me	Agree	71.6	74.3		
	Disagree	28.4	25.7	.771	.769
	N	74	35		

The entrepreneurs' perceptions were that dual-working relationships did not improve the family financial situation significantly, and spouses working in the businesses did not think that the family was better off after creating the new venture. The majority of the entrepreneurs in dual-working relationships also revealed that they did not have time for themselves, did not have time for their spouses, and did not have time for their children. Time has been one of the key factors

identified in previous studies to be the most challenging issue in running family businesses. Without spending enough time together as a family, entrepreneurs implied that the new venture indeed had some effect on their marriages.

Given the differences between expectations and the reality of running the businesses, most of the entrepreneurs still believed that their family would support them to start new ventures again. It does not seem to make any difference from entrepreneurs' perception how spousal involvement would change the decisions of the new ventures. This confidence and self-assessment are typical characteristics associated with entrepreneurs' personality as discussed in previous literature.

The specific impact on the marriage is shown in Table 17. Among those whose spouse worked in the business, 6.8 percent were divorced, separated, or estranged and 6 percent of those whose spouse did not work who were divorced or separated. Among those whose spouse worked in the business, 17 percent indicated the experience strengthened their marriage compared to 9.9 percent whose spouse did not work in the business. Although most of the entrepreneurs still maintain the marriage relationship with their spouses, few admitted that the new venture had some effect on their marriages. While the situation might not be bad enough to get a divorce or to be separated, the new business definitely impacts the family relationship in some ways. Interestingly some entrepreneurs believed that the dual working relationship strengthened their marriage, especially for those working with spouses. Working together provided opportunities for couples to understand the business process, to observe each other from a professional perspective, to learn from each other, and to deal with challenges as a team. Those who were optimistic about their business and marriage situation probably balanced their business life and family life better than others.

Table 17. Percentage of Spouse Working in the Business by Impact on Marriage

	Spouse Works	Spouse Does not Work	P-value for Chi-Square Test	P-Value for Gamma Test
Divorced	1.4	3.0	0.737	0.581
Separated	2.7	3.0		
Estranged	2.7	0.0		
No Change	58.9	63.6		
Not Sure	16.4	21.2		
Strengthened	17.8	9.1		
N	73	33		

FACTORS INFLUENCING THE SPOUSE'S DECISIONS TO WORK IN THE BUSINESS

The previous section summarized the entrepreneurs' perceptions of each individual factor associated with new venture creation and family relationship. People might ask: "Which factors are more influential than others regarding spousal involvement in the business if combining all the factors together as a consideration?" The Logistic Regression Model is an appropriate test to verify those influential factors from entrepreneurs' responses. A backward stepwise selection process was

applied to select appropriate variables to be included in the regression model and to avoid serious correlations among variables. The first set of the Logistic Regression used all the circumstantial variables related to location of the business, type of the business, legal form of the business, number of full-time employees, years being in the business, whether spouse work outside the business, and the age of the oldest child. The second set of the Logistic Regression included variables related to entrepreneurs' perception on business development and family relationships. Results of the Logistic Regression analysis are presented in Table 18 and Table 19.

Holding everything else constant, spouses were more likely to work in the Eating and drinking businesses compared to Retailers (Table 18). The number of full-time employees showed significant impact on spousal involvement in the businesses - when there were more full-time employees, spouses were less likely to be involved in the business. Whether spouse worked in the business also significantly related to the number of years being in the business. It was more likely for spouses to work in younger businesses, when other factors were held constant. If the spouses had worked in the business, it would be more likely for spouses to have other jobs outside the business. Some of the spouses probably worked in the family business part-time and had other jobs outside. It is also possible that the family business could not bring in satisfactory income to sustain the needs of the family, so that spouses decided to get other jobs for more income. Other factors did not show significant influence on spouses' decisions about working in the business, however there were some interesting phenomena. Spouses were more likely to work in the rural family businesses, Sole Proprietors were more likely to have their spouses involved in the business, and the age of the oldest child seemed to have some positive impact on spousal involvement in the business.

Table 18 Logistic Analysis for Factors Influence Spouse's Decisions to Work in the Business – Demographic Variables

	B	Wald Statistic	P-value for the Significance
Constant	-0.528	0.326	0.568
Location(1)	-0.642	0.637	0.313
TYPE1(1)	1.760	4.542	0.033**
TYPE1(2)	0.100	0.013	0.908
LEGAL1(1)	0.368	0.309	0.578
FULLEMPLOY	-0.107	3.503	0.061*
HOWLONG	-0.081	6.508	0.011**
SPOUT(1)	4.115	15.570	0.000**
OLDCHILD	0.028	0.937	0.333

While discussing the impacts of the dual working relationship in family businesses, it was clear that spouses were more likely to be involve in the business if they were enthusiastic, happy, and better off in the new venture process (Table 19). Spouses were also more likely to work in the

business when entrepreneurs felt that the business was up and running well, it took longer to start, and income was good before starting business. Dual working relationship probably helped in the process of the business development, and to improve the income after running the business. Spouses were less likely to be involved when children were enthusiastic about the new venture, which may indicate that children were probably involved in the business and provided sufficient help. Interestingly entrepreneurs revealed that they expected to be happier and expected the family to be better off, when their spouses were less likely to be involved in the business. Entrepreneurs also indicated that their spouses were less likely to be happier if spouses worked in the business, and that they were not be able to spend more time together. Entrepreneurs who did not work with their spouses in the business were more likely to spend less time with their spouses, and the business had negative impact on the relationship with their spouses. It is reasonable to assume that couples would understand the business process better if they both work in the businesses. They would also have the similar opportunities to share challenges and success. If divorce was the worse situation for a couple being involved in the business together, entrepreneurs were less likely to be separated from their spouses but more likely to be estranged from their spouses.

Table 19. Logistic Analysis for Factors Influence Spouse's Decision to Work in The Business – Entrepreneurs' Perception on Expectation and Reality Relating to Business and Family Development

	B	Wald Statistic	P-Value for Significance
Constant	1.981	0.043	0.835
UP(1)	9.331	1.590	0.207
HARDER(1)	1.946	0.090	0.764
INCGOOD(1)	0.375	2.900	0.089*
SPOENTHU(1)	2.388	0.202	0.653
CHIENTHU(1)	-0.577	3.619	0.057*
HAPPIER(1)	-2.484	0.457	0.499
FAMIBETE(1)	-0.942	0.697	0.404
RESPOHAP(1)	-1.006	4.993	0.025**
RESPBETT(1)	4.050	0.608	0.435
NOTIMESP(1)	-0.917	2.842	0.092*
RELATSPO(1)	-2.421	0.033	0.998
MARRIAGE(1)	-24.558	0.007	0.932
MARRIAGE(2)	8.128	0.005	0.946
MARRIAGE(3)	6.556	2.057	0.152

CONCLUSIONS AND IMPLICATIONS

The process of starting a new venture brings various feelings and experiences into a family. The business, started as a dream idea, could be tough when the dream does not coincide with the reality. According to the results of this study, most of the circumstantial factors about the family and the business seem to relate to spouses' decisions in many unique ways. For those spouses who work in the businesses,

(1) The majority of them are wives,
(2) Most of the businesses have been running less than five years,
(3) Most of the businesses have less than five employees (including full-time and part-time),
(4) Some spouses also work outside of the family business,
(5) Most of the businesses are in rural areas,
(6) Most of the families have children younger than 20 years old,
(7) Most of their children do not work in the family businesses, and
(8) Their business annual sales are less than $500,000.

There are a few similarities for those entrepreneurs who do not work with their spouses in the family businesses. Most of these family businesses without spousal involvement are also young (less than 5 years), very small (with less than five full-time or part-time employees), and with low annual sales. However, the number of employees and the years in business seem to influence spouses' decisions more significantly compared to other circumstantial factors. Spouses are more likely to work in younger businesses, in rural areas, and with fewer employees. This is something that has not been revealed in previous literature that might be helpful for entrepreneurs, researchers, and business advisory agencies. Family businesses need to attempt a balance between business and family relationships as indicated in other literature. When drafting the plan to start the business, entrepreneurs and those people who provide consultation for entrepreneurs could be more flexible depending on the location of the business, how the spouses should be involved, the scale of the business, the need of the children, and how they project their sales and business development.

Comparing expectation to reality, most entrepreneurs working with spouses in the business in this study indicate that:

(1) The business is up and running well,
(2) Sales are higher than expected but profits are not as high as expected,
(3) Starting the business was harder and took longer than expected,
(4) Spouse and children were enthusiastic,
(5) Expected everyone in the family would be happier and financially better off after starting the business, and
(6) After running the business, only entrepreneurs think they are happier and financially better off, their spouses and children, from the entrepreneurs' perceptions do not feel happier or financially better off.

Most of the entrepreneurs not working with spouses shared similar responses compared to those who work with spouses. Whether spouses work in the business or not, the business process definitely has an impact on family relationships. Divorce, separation, and estrange seem to be problems in a few family businesses. While some entrepreneurs are not sure what or how new venture influence on marriage situation, some entrepreneurs actually believe that the business venture strengthens their marriage. Not surprisingly, a majority of the entrepreneurs admit that they do not spend as much time with their family, with or without spouses working in the business. Time has been identified in other literature as one of the key factors for family business to maintain a balanced life. However this study has discovered something different from other literature - dual working relationships in a family business do not seem to influence entrepreneurs' perception about (1) how they expect the business to develop, and (2) how things go in reality after running the business. Entrepreneurs hold certain expectations for the new venture regardless of whether their spouses work in the business, they assess their family's reaction to the business process consistently with or without spouse working in the business, and they realize that business process interacts with family relationships with or without spouse working in the business. Most interestingly, a significant proportion of the entrepreneurs would start new ventures again, and they believe their family would support them to start again. Challenges in family relationships and in the business development process do not seem to be major concerns for most of the entrepreneurs.

The results of this study are beneficial to entrepreneurs, researchers, and practitioners by providing an understanding of how new venture creation relates to family relationship. It is always helpful for entrepreneurs to exchange their ideas with their family, to discuss family issues separately from business issues with everyone involved in the process, and to set aside time from business for the family. More studies in the future could be expanded to:

(1) Increase the sample size and response rate so that the responses could be more representative
(2) Include both entrepreneurs and their spouses when conducting the surveys.
(3) Conduct surveys in several industries to get a boarder specimen of the answers from both entrepreneurs and their spouses, and to compare and contrast the responses.
(4) Interview or survey those entrepreneurs who decided not to start the new ventures, and to find out if spousal and marriage relationship have influenced their decisions.
(5) Conduct continuous surveys over time to determine if there are trends or patterns in entrepreneurial behavior related to family relationships.

REFERENCES

Allen, K. (1995). *Launching New Ventures An Entrepreneurial Approach.* Chicago, Upstart Publishing Company.

Baumback, C; Lawyer, K. & Kelley, P. (1973). *How to Organize and Operate a Small Business*, 5th Edition. Englewood Cliffs, N.J., Prentice Hall, 19-79.

Beauprez, J. (1998). Stretched thin: Longer hours at office have put many execs on road to burnout. *Crain's Cleveland Business, 19*(5), February 2, 1, 8.

Bhidé, A. V. (2000). *The Origin and Evolution of New Businesses*, Oxford, Oxford University Press, 61.

Bures, A. L. et al. (Winter 1995-1996). The effects of spousal support and gender on worker's stress and job satisfaction: A cross national investigation of dual career couples, *Journal of Applied Business Research*, *12*(1), 52-58.

Bygrave, W. (1994). *The Portable MBA in Entrepreneurship.* New York, John Wiley & Sons, Inc., 7; 20.

Church, O. (1984). *Small Business Management and Entrepreneurship.* Chicago: SRA, Inc., 42-43.

Davies, J. (1999). Mother of invention – Women entrepreneurs, *Management Today*, January, 64-66.

Dichter, P. M. (1996). Never hire your spouse? Baloney!, *Medical Economics, 73*(5), March 11, 243-244+.

Dollinger, M. J. (1994). *Entrepreneurship Strategies and Resources.* Burr Ridge, Illinois: Irwin, 389.

Dunn, P. & Liang, C. (Kathleen). (2001). For better or worse: The impact of starting a business on entrepreneurs and their family. *Association for Small Business & Entrepreneurship Proceeding*, 41-48.

Gallop-Goodman, G. (2000). All in the family. *Black Enterprise*, June, 158-166

Handler, W. C. (1992). The family venture, In Sahlman, W. & Stevenson, H., (Eds). *The Entrepreneurial Venture*, Boston: Harvard Business School, 311.

Grassi, C. (1999). 100% deduction available for self-employed, *Crain's Cleveland Business*, June, 28.

Hayward, C. (2001). Going for broke,. *Financial Management*, April, 22-24.

Hisrich, R. & Peters, M. (1995). *Entrepreneurship Starting, Developing and Managing a New Enterprise*, (3rd Ed.). Chicago: Irwin, 60.

Hodgetts, R. & Kuratko, D. (1995). *Effective Small Business Management*, (5th Ed.) Fort Worth: Dryden Press, 32; 56-60.

Hoover, E. & Hoover, C. (1999). *Getting along in family business: The relationship intelligence handbook.* London: Routledge.

Jaffe, A. (1997). Your business or your life, *Inc, 19*(3), March, 108-109.

Jennings, D. (1994). *Multiple Perspectives of Entrepreneurship.* Cincinnati: South-Western Publishing Company, 159.

Kao, J. (1989). *Entrepreneurship, Creativity, & Organization.* Englewood Cliffs, N J: Prentice Hall, 102.

King, C. A.(1998). Family-owned firms need planners' help in designing pay, *National Underwriter Life & Health*, *102*(43), October 26, 53-54.

Kuratko, D. & Hodgetts, R. (1998). *Entrepreneurship A Contemporary Approach* (4th Ed.). Fort Worth: The Dryden Press, 16; 35; 107-109.

Lambing, P. & Kuehl, C. (1997). *Entrepreneurship*, Englewood Cliffs, NJ: Prentice-Hall, Inc., 12 - 13.

Landes, H. D. & Frankenberg, E. (1998). Case study: A business threatens a couple, *Nations Business*, *86*(6), June, 72.

Lieberman , S. (2000). All in the family. *Restaurant Hospitality LXXXIV*, March, 24.

Lobel, S. A, Googins, B. K. & Bankert, E. (1999). The future of work and family: Critical trends for policy, practice, and research, *Human Resource Management*, *38*(3), Fall, 243-254.

Longenecker, J., Moore, C. & Petty, J. W. (2000). *Small Business Management*, (11th Ed.). Cincinnati: South-Western College Publishing, 29.

Marer, E. (2000). Portrait of conflict: Advisers are helping clients separate business and family and improve both in the process, *Financial Planning*, June 1, 168-172+.

Masuo, D. , et al. (2001). Factors associated with business and family success: A comparison of single manager and dual manager family business households, *Journal of Family and Economic Issues, 22*(1), Spring, 55-73.

Mattera, G. S. (2000). Advising family businesses: It's about communication, *Advisor Today*, June, 100-102.

Montgomery, B. J. & Sinclair, A. M. (2000). All in the family. *Business and Economic Review*, Jan-Mar, 3-7.

Naphtali, M. (2000). Keeping business all in the family, *Australia CPA*, June, 43.

Nelton, S. (1996). Preparing for the tests of company ownership, *Nations Business, 84*(8), August, 56.

Page, H. (1999). Entrepreneur…with children – Striking a balance between business and family, *Entrepreneur*, *27*(4), April, 14-15.

Powell, G. N. & Foley, S. (1997). Reconceptualizing work-family conflict for business/marriage partners: A theoretical model, *Journal of Small Business Management*, *35*(4), October, 36-47.

Rowthorn, R. (1998). *Marriage and Trust: Some Lessons from Business Organisation*, University of Cambridge, ESCR Center for Business Research Working Paper, WP113.

Scarborough, N. M. & Zimmerer, T. W. (2000). *Effective Small Business Management*, (6th Ed.). Englewood Cliffs, N J: Prentice-Hall, Inc., 30.

Sahlman, W. & Stevenson, H., (Eds). (1992). *The Entrepreneurial Venture*, Boston: Harvard Business School, 311.

Schatz, R. D. (2000). Married to the business. *Business Week*, June 12.

Scott, R. B. Jr. (2000). Consulting with family-owned businesses, *The CPA Journal*, May, 80-81.

Scroggins, R.E. (1996). Hiring your spouse can wreck your practice, *Medical Economics*, June 24, 150-152+.

Srikonda, S. L. P. (2000). For the love of business, *Industrial Distribution* 89, April, 125-131.

Stevenson, H., Grousbeck, I., Roberts, M. & Bhidé, A. (1999). *New Business Ventures and the Entrepreneur*, (5th Ed.), Boston: Irwin McGraw-Hill.

Steward, C. C. & Danes, S. M (2001). Inclusion and control in resort family businesses: A developmental approach to conflicts, *Journal of Family and Economics Issues, 22*(3), Fall, 293-320.

Tate, C., Megginson, L., Scott, C. & Trueblood, L. (1985). *Successful Small Business Management.* Plano, TX: Business Publications, Inc., 22.

Timmons, J. A. (1999). *New Venture Creation, Entrepreneurship for the 21st Century*. Boston: Irwin McGraw-Hill.

U.S. Small Business Administration, *Challenges in Managing a Family Business*, Management and Planning Series, MP-3.

Vesper, K. (1996). *New Venture Experience*, Revised Edition. Seattle: Vector Books.

Ward, J. L. (1987). *Keeping the Family Business Healthy.* San Francisco: Jossey-Bass Publishers, 54-74.

INFLUENCES ON ENTREPRENEURIAL AWARENESS: INTERNAL VS. EXTERNAL MOTIVATIONS

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ABSTRACT

Entrepreneurs have been examined in a variety of ways including profiling on a number of behavioral and demographic variables. Although there is little agreement regarding the personality traits, age, gender and motivational factors leading to self-employment, most scholars believe these to be noteworthy constructs for research. This study examines the relationships between externally and internally motivated entrepreneurs and entrepreneurial awareness. Our initial model suggests the antecedents of entrepreneurial awareness are social networks, perceived risk, illusion of control, flexibility, information asymmetry and prior knowledge, optimism, and creativity. In addition, research indicates entrepreneurial awareness of business owners differs based on the source of idea stimulation--external and internal. Social networks are more important for externally stimulated entrepreneurs, while perceived risk is more highly correlated with internally stimulated entrepreneurs. For both groups of business owners entrepreneurial awareness is significantly correlated with optimism, creativity, and illusion of control. Correlations between entrepreneurial awareness and both perceived risk and optimism are significantly different between the externally and internally motivated entrepreneurs. Discussion and ideas for further research are presented.

INTRODUCTION

How and why entrepreneurs formulate business ideas and choose their business ventures is a subject of continuing study. Although the establishment and development of a business opportunity is key in all self-employment ventures, the factors affecting opportunity recognition and motivation may vary among entrepreneurs. Based on a survey of recent small business owners, this paper examines the degree to which social networks, perceived risk, illusion of control, flexibility, information asymmetry and prior knowledge, optimism, and creativity are related to opportunity awareness, an antecedent to opportunity recognition. In addition, a comparison is made between those entrepreneurs who are internally motivated and those who are externally motivated to determine if differences exists between the two groups in the factors that are associated with entrepreneurial awareness. The study finds entrepreneurial awareness in both internally and externally motivated entrepreneurs to be significantly correlated with optimism, creativity, and illusion of control. Externally-motivated entrepreneurs are additionally affected by their social

networks, while internally-motivated entrepreneurs are affected by perceived risk. These results provide insight into opportunity recognition behavior among both entrepreneurs and would-be entrepreneurs regarding idea generation as it relates to the formation of new business ventures.

LITERATURE REVIEW

A successful business venture is the result of the successful development of an opportunity. Much of the research in entrepreneurship has focused on opportunity development and how individuals establish and maintain their successful operations. However, before an opportunity is developed, it must be recognized-- that is, someone must become aware opportunity exists. Opportunity recognition has been studied (see, for example, Hills, Lumpkin & Singh, 1997) as a precedent to business development and additional research has focused on the role of entrepreneurial awareness as a precedent to opportunity recognition. (Ardichvili, Cardozo & Ray, forthcoming)

Entrepreneurial Awareness

In their examination of opportunity recognition, Ardichvili, Cardozo, and Ray (forthcoming) suggest opportunity recognition is preceded by entrepreneurial awareness, a propensity to notice and be sensitive to information about objects, incidents, and patterns of behavior in the environment, with special sensitivity to maker and user problems, unmet needs and interests, and novel combinations of resources. As a precursor to opportunity recognition, entrepreneurial awareness is necessary to gather information and to make linkages between an individual's interests and expertise and issues within the environment. These macro environmental variables include social, legal, political, demographic, and psychographic issues. While the information is external, it may involve more than environmental issues alone. Other factors include those individuals after whom the entrepreneur patterns behavior and new product development variables. These "more aware" individuals tend to gather significant information to aid in later business formation. Therefore, those who are more introspective or unaware may miss significant market shifts and/or consumer preference changes that could lead to profitable new business ideas.

Based on the extending works of many researchers (Hills, Lumpkin & Singh 1997; Forlani & Mullins 2000; Simon, Houghton & Aquino, 1999; Shane, 2000; Ray & Cardozo, 1996), the current study examined factors hypothesized to be correlated with entrepreneurial awareness including:

social networks,
perceived risks,
illusion of control,
flexibility,
information asymmetry and prior knowledge,
optimism, and
creativity.

Social Networks

A social network consists of the number and type of individuals with whom a person has contact. Interacting with others is a particularly important vehicle for staying attuned to the general climate of opportunities. Hills, Lumpkin, and Singh (1997) stress the importance of entrepreneurs' social networks when they note entrepreneurs who have extended networks identify significantly more opportunities than solo entrepreneurs.

In addition to identifying the importance of social networks to entrepreneurial awareness, De Koning (1999) identified the various groups of people who define one's social network. The author identified the set of people with whom an entrepreneur has long term, stable relationships, but are not partners in the venture (entrepreneur's inner circle); the people recruited by the entrepreneur to provide necessary resources for the opportunity (the action set); the start-up team members (partners); and the group of people used to gather general information (a weak-tie network). An entrepreneur's inner circle may include close friends and family as well as colleagues from previous employment or past business ventures. Other long-term, stable contacts can include members of professional and civic organizations, neighbors, religious group members, and contacts associated with daily activities (i.e., consumer transactions and service employment).

On the other hand, the action set may parallel the entrepreneur's inner circle to include advisors, members of boards of directors, bankers, lawyers, financial planners, and other professionals. Start-up team members may include formal partners with, or without an equity stake in the business, as well as informal partners who have a vested interest in the business. The group may even include family members. The weak-tie network is a loose amalgamation of contacts but is of no less importance. This group may include a number of individuals involved in formal acquisition of information such as those involved in marketing research, environmental scanning, analysis of consumer behavior, market trends, industry structure, supply chains, and political and regulatory shifts. Informally, the group can include customers, ad-hoc focus groups, and the general public.

Perceived Risk

Early studies of entrepreneurial risk-taking centered on the premise entrepreneurs are predisposed to take on risky ventures (d'Ambrose & Muldowney, 1988). However, Palich and Bagby (1995) challenged this theme using categorization theory to frame the decision process used by entrepreneurs. Categorization theory posits that decision-makers confronted with large amounts of information use cognitive heuristics. Heuristics or "rules of thumb" are mental shortcuts used to help store and process information efficiently. The authors proposed, rather than having a higher propensity for undertaking risky ventures, entrepreneurs may instead have a lower level of risk perception. The use of heuristics in assessing new ventures can lead to higher levels of optimism and lower levels of risk perception, thus predisposing the decision-maker towards entrepreneurial ventures. An empirical analysis (Palich & Bagby, 1995) indicated no significant difference in the risk propensity of entrepreneurs and non-entrepreneurs. However, using a SWOT analysis scenario, entrepreneurs did differ significantly across all categories in their assessment of a venture's

strengths, weaknesses, opportunities and threats. The authors conclude lower risk perception, and not higher risk propensity, explains why some individuals will start new ventures that others choose not to pursue.

From a slightly different perspective, Forlani and Mullins (2000) studied the aspects of a decision-maker faced with a particular decision leading entrepreneurs to perceive varying levels of risk in a potential new venture. While they conclude both risk propensity and risk perception influence the new venture choices, their study is based upon a methodology that places CEO managers, rather than entrepreneurs, in hypothetical decision situations. While both the Simon, Houghton, and Aquino (2000) and the Forlani and Mullins (2000) research findings are interesting; their weakness is that their methodology does not focus on a true sample of entrepreneurs, but rather a convenience sample of managers and MBA students.

Illusion of Control

Simon, Houghton, and Aquino (2000) integrated the illusion of control variable in their study of entrepreneurs. Illusion of control occurs when an individual attributes greater influence to their skill rather than random chance in assessing the results of a previously uncertain outcome. Simon, Houghton, and Aquino (2000) tested their model using a decision-making simulation with MBA students as subjects. They concluded illusion of control is correlated with risk perception, which influences decision makers to start a new venture.

Entrepreneurs typically have confidence in their abilities to both start a business and make it a success. They often feel power over uncontrollable external variables and internal processes termed an "illusion of control." This illusion of control is important for the start-up process. Without some perception of power and ability to motivate others, as well as to sell an idea, secure funding, attract partners, and other investors during start-up, few entrepreneurs would begin the process. This illusion of control acts as a reinforcement and foundation upon which to build the business venture. Typically when entrepreneurs have an illusion of control, they feel they can make a business idea a success when others might fail. In addition, they feel a sense of expertise in forecasting results and even anticipating the actions of competitors. Without an illusion of control, the would-be entrepreneurs may doubt their skills and abilities and be less aware of potential entrepreneurial opportunities.

Flexibility

Like creativity, flexibility is seen as essential to entrepreneurial success. Flexibility is the ability to adapt to a changing environment. As entrepreneurs journey through the business formation process, flexibility is required at every step along the way -- in the development of the business idea, the product or service development process, the search for partners and funding, the choice of a location, promotional opportunities, names, business logos, branding, and a myriad of other important decisions. Without flexibility, the would-be entrepreneur may see the inability to evolve as they projected as a barrier to further development and may exit the market or never develop the potential business.

In her study of successful entrepreneurs, Monk (2002), suggested flexibility as the key to uncovering unexpected opportunities during a recession. In a case-study approach of three companies, she found entrepreneurs did not always launch businesses when they wanted to, but rather when they were forced to start them, given externalities. The entrepreneurs felt they had to be flexible regarding change. For example, retailing is about testing and developing ideas and this requires constant development and evolution, which all require flexibility. This suggests the potential role of flexibility in being aware of entrepreneurial opportunities.

Prior Knowledge and Information Asymmetry

People tend to notice new information if it is related to information they already know (Von Hippel, 1994). Therefore, Shane (2000) postulated entrepreneurs would discover opportunities because prior knowledge triggers recognition of the value of the new information. His research tested and confirmed the following hypotheses: (1) Any given entrepreneurial opportunity is not obvious to all potential entrepreneurs; each person's idiosyncratic prior knowledge creates a "knowledge corridor" which allows them to recognize certain opportunities, but not others (Hayek, 1945); and (2) three major dimensions of prior knowledge are important to the process of entrepreneurial discovery--prior knowledge of markets, prior knowledge of ways to serve markets, and prior knowledge of customer problems.

Sigrist (1999) postulated two types of prior knowledge relevant to this process--a knowledge in an area or domain of special interest, or knowledge that can be described in terms of fascination and fun. Years of working in an areas result in knowledge that is primarily of special interest to that particular field.

Optimism

Individuals who see the world in a positive light seem better able to recognize entrepreneurial opportunities. Scholars have investigated the relationship between greater opportunity recognition and optimism and a positive relationship has been noted (Krueger & Brazael, 1994). Successful entrepreneurs are more likely to see problems as opportunities. Their optimism and positive outlook encourages them to search for solutions to problems. The solutions often result in a new entrepreneurial venture. Without optimism, many opportunities may be overlooked. Optimism may also encourage the risk-taking attitudes and abilities often noted in entrepreneurs (Krueger & Dixon, 1994). Pessimists are more likely to see problems as insurmountable, and consequently their attitude limits their ability to find solutions. Those optimistic about the chances of success may be more likely to continue a business despite challenges in operations. Many entrepreneurs are not first-time entrepreneurs and thus do not see failure in a prior business as a limiting factor to future success in a new venture.

Creativity

While the term creativity may represent artistic talents or cultural proficiency to many people, it has a particular and unique meaning in the world of entrepreneurs. Ray and Cardozo (1996) define entrepreneurial creativity as an ability to quickly recognize problems and their proposed resolution by identifying obscure or unique solutions and/or by using available resources in a non-obvious manner to solve dilemmas. In the case of the entrepreneur, creativity also implies solving problems within a time frame in advance of other market entrants. The entrepreneur not only defines the problem (or unmet market need) correctly but uses resources effectively and efficiently to develop the business. The entrepreneur is an early entrant into the evolution of a market. Developing a competitive advantage (Porter, 1980) is often the result of a creative mind.

Internally vs. Externally Motivated Entrepreneurs

The reasons individuals make decisions to begin new business ventures are numerous and varied. These reasons range from situational factors, such as losing a job or having a spouse die, to discovering a product or service to be marketed. The motivations for beginning a business venture have an effect on opportunity recognition. In an early study of entrepreneurial motivations, Cyert and Marsh (1963) suggested the process of recognizing an entrepreneurial opportunity could be the result of an "opportunistic search" or a "problematic search."

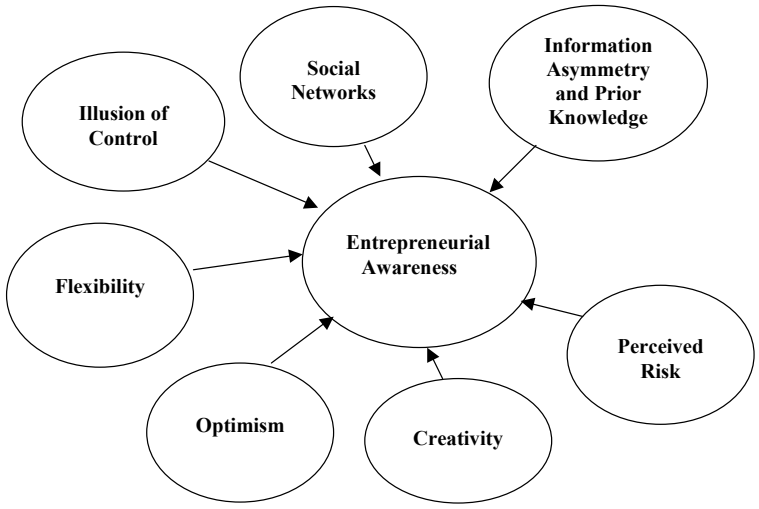
Bhave (1994) reclassified these terms as externally stimulated opportunity recognition and internally simulated opportunity recognition. In his study of entrepreneurial venture creation, Bhave suggests entrepreneurs are externally stimulated when the decision to start a venture precedes opportunity recognition. The decision to become involved in a business venture is influenced by the individual's personal and environmental situation. For example, a person may be laid off from their current job, or decide that they no longer enjoy their current job situation. According to Bhave, the majority (59%) of the decisions to begin a business are of this type. For the remainder (41%) of entrepreneurs the decision to start a venture follows opportunity recognition. These internally stimulated individuals discover a gap in the ability of the current marketers to successfully meet the needs of consumers and the result is the development of a business enterprise. Since the motivation of these two groups of entrepreneurs are different, it stands to reason there may be differences in the factors correlated with their degree of entrepreneurial awareness as it relates to ultimately recognizing entrepreneurial opportunity.

MODEL AND HYPOTHESES

Figure 1 defines the model of influences on entrepreneurial awareness based on the previously defined variables. The model consists of seven factors: social networks, perceived risk, illusion of control, flexibility, information asymmetry and prior knowledge, optimism, and creativity. The following hypotheses are postulated.

H1:	Entrepreneurial awareness is associated with: a. Social networks b. Perceived risk c. Illusion of control d. Flexibility e. Information asymmetry and prior knowledge f. Optimism, g. Creativity entrepreneurial awareness.
H2:	The correlation of entrepreneurial awareness with the above factors will vary depending on the entrepreneur's external vs. internal stimulation.

Figure 1: Proposed Model of Entrepreneurial Awareness



DATA COLLECTION AND METHODOLOGY

To test the hypotheses and validate the model, data was collected using a questionnaire mailed to 3,574 persons identified as having applied for a new business license in a five-county metropolitan statistical area, which crosses political lines and is located at the border of three Southeastern states. These licenses are required of all new businesses, as well as those who change ownership or the form of their organization (e.g., partnership changed to an S-corporation). In addition, business licenses are valid for five years and must be renewed. Thus the original population contains both new and existing businesses in the sample area. The data collection procedure included a postcard alerting the respondents to the forthcoming survey and two subsequent mailings of the survey instrument.

Consistent with the research objective of focusing exclusively on the characteristics and attributes of recent entrepreneurs, acceptable respondents for the sample were limited to those who formed and began their business during the past four years. The four-year limitation was developed based on recency effects which includes the respondent's ability to accurately recall both their attitudes at formation as well as the external conditions of the economy and other macro-environmental forces. Using this criterion, the sample size was distilled from 468 total respondents to 204 recent entrepreneurs.

The data were analyzed using SPSS-X Statistical Package for the Social Sciences. The initial hypotheses of key variables influencing entrepreneurial awareness were tested using correlation analysis. The second hypothesis, testing the correlation of key variables and entrepreneurial awareness as they differ based on the source of motivation, i.e., internal versus external was tested by transforming correlations into z-scores and using Fisher z-scores to test for differences between independent correlations.

The sample was split into an "internal" and an "external" subset based on the respondent's primary reason for starting a new business or purchasing an existing business. The question on the source of motivation polled respondents as to the primary reason for starting their business including: being unemployed; not satisfied with their former work situation; an opportunity to develop new ideas; an opportunity to develop someone else's ideas; a desire to be one's own boss; a desire to make more money; and an open-ended, "other" category, asking respondents to list any other primary motivation(s).

External motivations were the opportunity to develop their own ideas and the opportunity to develop someone else's idea, while internal motivations were unemployment, dissatisfaction with prior jobs, desire to be one's own boss, and desire to make more money. The few responses to the "other" category were classified as "external" or "internal" based upon the expert opinion of a former entrepreneur, who grew a business through formation to the IPO stage, and two researchers in the area of entrepreneurship.

Once the sample was split into the two subsets, the data was subjected to initial correlation analysis to determine differences, if any, between the groups on the selected variables. Based on the results of the analysis, five of the seven variables were significantly correlated with entrepreneurial awareness.

Measures

The three items that measured entrepreneurial awareness evaluated the respondent's ability to spot solutions, perception of changes, and general awareness of the world measured entrepreneurial awareness. These items were developed based on the work of Ray and Cardozo (1996). As noted earlier, social networks consist of the number and type of individuals with whom a person has contacts. In this study an entrepreneur's social network was measured by using four Likert scale items that were based on the work of Forlani and Mullin (2000).

Two scales used were adaptations of measurement tools used by Hills, Lumpkin, and Singh (1997). A three-item seven-point response scale was used to measure perceived risk. As an example, respondents were asked to rate the risk associated with starting their business venture from

"minimal" to "extreme". The other items used the same concept scale with anchors of "very risky/not risky" and "high/low." The respondent's perception of the importance of creativity in a business venture, as well as the respondent's self perception of their creative abilities were the focus of the 3-item scale used to measure creativity

The Illusion of Control, Optimism and Flexibility scales were based on the work of Simon, Houghton and Aquino (1999). The Illusion of Control scale consists of three items focused on measuring the respondent's ability to forecast results, to make a business successful, and to anticipate competitor's actions. Optimism, a three-item scale, measured the respondent's views regarding the likelihood of improvement in the economy and in the respondent's life. Flexibility was measured by a ten-item Likert response scale. These items sought to measure the respondent's likelihood of responding to change in a favorable manner, feelings toward uncertainty and operating standards.

Information Asymmetry and Prior Knowledge was measured using three Likert-scaled items including: knowledge of the overall market for a chosen business, ways to serve the market for the business, and awareness of customer problems or issues in the market,

RESULTS

Basic descriptive statistics were run to determine the distribution of the demographic characteristics of the respondent sample. The results are shown in Table 1. While the five factors (variability in optimism, creativity, illusion of control, social network, and perceived risk) were significantly correlated with entrepreneurial awareness for both groups of entrepreneurs, perceived risk was correlated only with internally-stimulated entrepreneurs while social networks was correlated only with externally-stimulated entrepreneurs. (See Table 2)

Internally Stimulated Entrepreneurs

For the internally stimulated entrepreneurs, four variables were significantly correlated with entrepreneurial awareness at the 0.02 level of significance. The variables were: Optimism (0.00), Creativity (0.01), Perceived Risk (0.02), and Illusion of Control (0.00). Interestingly, social networks were not significantly correlated with entrepreneurial awareness for internally stimulated entrepreneurs. Initially this seemed to be an unexpected finding; however, upon further analysis, the explanation may be internally stimulated entrepreneurs do not actively seek a large social/business set of contacts, preferring to reach key decisions on their own or in very small groups.

Flexibility was not significantly correlated and could possibly be explained by the lack of contacts and social network of the internally stimulated entrepreneur, leading the entrepreneur to their idea. Without feedback and idea testing externally, the entrepreneur is likely set on their "one" idea and is not as flexible to change or new suggestions. Information Asymmetry and Prior Knowledge did not trigger recognition of business ideas as these individuals were more concerned with their own needs or their current work situation. This does not mean the market forces and ideas for product and service improvement are not important, but may be subordinated by the entrepreneur's desires to change their immediate situation or fulfill personal goals and objectives.

Table 1: Respondent Characteristics			
	Internally Stimulated Entrepreneurs	Externally Stimulated Entrepreneurs	Total
Gender			
Male	49	76	125
Female	31	32	63
Previous Occupation			
Mgr./Supervisor	39	60	99
Non-Supervisor	22	38	60
Unemployed/Not Seeking work	5	5	10
Self-Employed	21	8	29
Unemployed/Seeking	2	2	4
Age			
18-29	13	22	35
30-49	57	74	131
50+	20	16	36
Education			
Grade	2	0	2
High	24	36	60
College	41	66	107
Post Bachelor	21	10	31

Table 2: Correlations Between Entrepreneurial Awareness and Explanatory Variables Among Internally and Externally Stimulated Recent Entrepreneurs		
	Internally Stimulated Entrepreneurs N=91	Externally Stimulated Entrepreneurs N=113
Social Network	.14(NS)	.21(.03)
Optimism	.34(.00)	.17(.07)
Creativity	.27(.01)	.19(.04)
Flexibility	.04(NS)	.13(NS)
Perceived Risk	.30(.02)	.09(NS)
Information Asymmetry	.02(NS)	.06(NS)
Illusion of Control	.38(.00)	.29(.00)

The defining factors for the internally stimulated entrepreneurs warrant further discussion. Optimism and creativity are personality factors and tend to appear in most entrepreneurs regardless of the source of their motivation. Because entrepreneurship or self-employment is seen as more risky (or with more potential for multiple failures) than is a corporate job, an individual needs confidence in their abilities to succeed in the long-term, as well as a way to define a new product

or service to serve the unmet needs of the market or to identify a new market for an existing product or service.

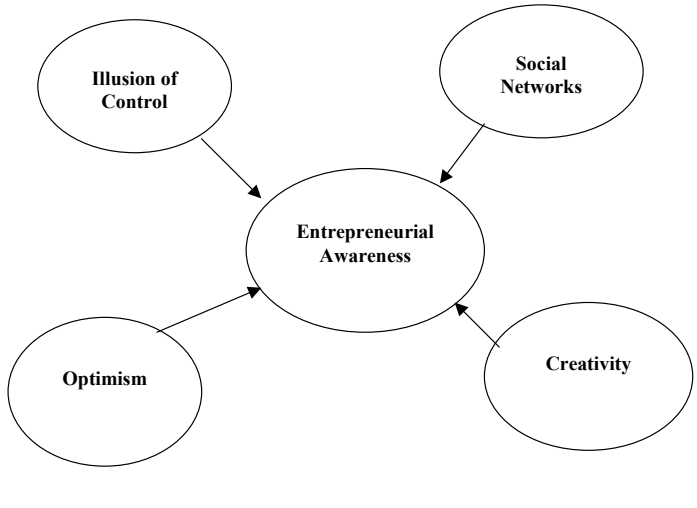
Perceived risk relates to the perception of the amount of inherent risk in the business idea or venture itself. The internal subset's perceived risk was positively correlated, thus indicating the group did not ignore the possibility of risk in the venture, but did not let the fear of failure stop them from achieving their dream of changing their current situation.

Illusion of control also fits the entrepreneurial personality and profile. To move forward in an entrepreneurial pursuit, an individual must believe they can succeed. This control or illusion of control, where perception is reality, influences the formation of the new business. It is not necessary to determine whether the control comes from an understanding of the market or a feeling of a "sure thing" in a possible business idea (including the purchase of a going concern or a franchise opportunity). The important issue is a person's feeling of confidence in their ability to control the process if not the business environment. Because a large percentage of new ventures fail, this illusion of control gives the would-be entrepreneur confidence to start another business.

Externally Stimulated Entrepreneurs

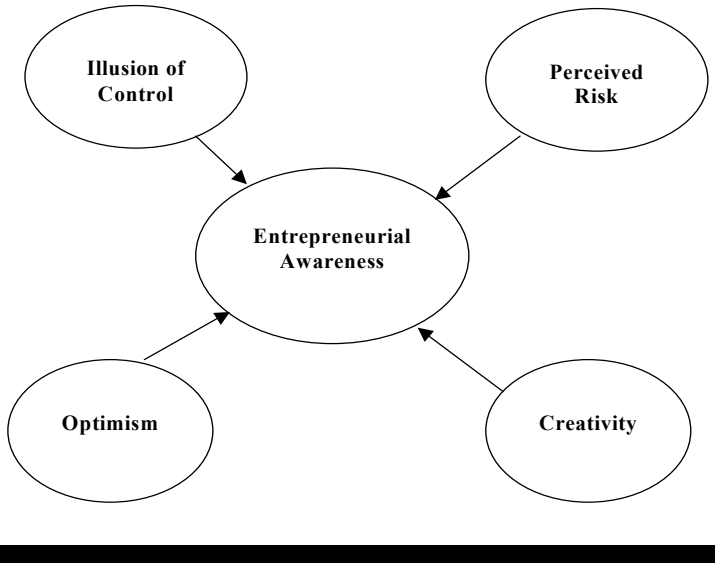
For the externally stimulated entrepreneurs, four variables were significantly correlated with entrepreneurial awareness at the 0.07 level of significance. The variables were: Social Network (0.03), Optimism (0.07), Creativity (0.04), and Illusion of Control (0.00). Not significant were flexibility, perceived risk, information asymmetry and prior knowledge, and risk propensity.

Figure 2: Model of Entrepreneurial Awareness for Externally Stimulated Entrepreneurs



As would be expected a priori, social networks are positively correlated with entrepreneurial awareness with the externally stimulated entrepreneurs. Large groups of individuals provide advice, confirmation, feedback, and constructive criticism to the would-be entrepreneur and are often the source of unique, innovative ideas for a business. Because their motivation for the venture is not to escape a current job or situation, they instead are seeking to develop their own idea or someone else's idea. Thus, they seek to discuss their ideas and are more likely to gather feedback from large social groups. Like the internally stimulated entrepreneurs they share the typical traits of optimism and creativity found in most all entrepreneurs. One need only read profiles of successful entrepreneurs in publications including Entrepreneur, Entrepreneur Magazine, Inc. Black Entrepreneur, or Minority Business Entrepreneur to confirm the importance of these two traits.

Figure 3: Model of Entrepreneurial Awareness for Internally Stimulated Entrepreneurs



Illusion of control also fits the externally motivated entrepreneur's personality and profile. Again, to move forward with the small business idea, regardless of the source of the idea or motivation, the entrepreneur must believe in their own abilities to bring the idea to fruition or to grow the existing purchased business.

Non-significant traits correlated with entrepreneurial awareness among the externally stimulated entrepreneurs were flexibility, perceived risk, and information asymmetry and prior knowledge. Flexibility measures an individual's organization, truthfulness, and general level of changing their idea. While flexibility is often important for an entrepreneurs open to new ideas, this factor was not significant. A reason for the lack of significance might be the use of extensive social networks prior to arriving at the business idea. Thus the social networks serve as an earlier precursor of flexibility. Perhaps this group has more confidence than the internally stimulated group, thus the insignificance of the risk-related variables. Perhaps too, entrepreneurs with a greater risk propensity are willing to take on more risk, but did not necessarily perceive it in the business

opportunity they chose. Figure 2 includes the major factors significantly correlated with entrepreneurial awareness for those externally stimulated. They are: social networks; illusion of control; optimism; and creativity. Figure 3 includes the major factors significantly correlated with entrepreneurial awareness for those internally stimulated entrepreneurs. They are: perceived risk; illusion of control; optimism; and creativity.

As noted earlier, to test for differences between the correlation scores of the internally and externally stimulated entrepreneurial groups, the correlation scores were transformed into Fisher z-scores following the procedure suggested for testing the difference between independent correlations (Wendorf, 2002). Z-scores were computed and compared to significance table values for each of the seven factors. Table 3 presents correlation scores and z-scores for each factor. The correlations of optimism and perceived risk with entrepreneurial awareness were both significantly different for internally and externally stimulated entrepreneurs. The correlations of the other five variables were not statistically different for the two groups.

Table 3: Differences in the Correlation Scores of Internally Stimulated Entrepreneurs And Externally Stimulated Entrepreneurs

	Internally-Stimulated Entrepreneurs N=91	Externally-Stimulated Entrepreneurs N=113	Difference	z-score (Significance)
Social Network	.138	.212	-.084	.60(NS)
Optimism	.354	.172	.182	1.30(.09)
Creativity	.271	.193	.078	.56(NS)
Flexibility	.044	.126	-.082	.59(NS)
Perceived Risk	.306	.085	.220	1.57(.06)
Information Asymmetry	.020	.060	-.040	.29(NS)
Illusion of Control	.405	.295	.110	.79(NS)

As expected from the previous discussion of the correlations, perceived risk was correlated only with internally stimulated entrepreneurs. Thus, this finding supports the strong linkage as the variable was not a key explanatory factor for the externally stimulated group. Optimism also was a factor found to be correlated strongly with both groups - the internally stimulated and the externally stimulated entrepreneurs. Thus this difference was not expected. However, this finding does not imply a lack of optimism or a need for optimism to gain entrepreneurial awareness. In this case, both groups have a significant degree of optimism, although the amount of optimism for each group is different. In both situations, it is interesting to note the higher levels of correlation were with internally stimulated entrepreneurs.

The other five variables were not statistically significant in their correlations between the two groups. For illusion of control and creativity, both groups exhibit strong correlations with entrepreneurial awareness in these factors. So a lack of significant difference is not unexpected.

However, social networks present an interesting situation. Social networks were significantly correlated with entrepreneurial awareness for externally stimulated entrepreneurs. A priori it is expected the differences would be significant between the two groups. Flexibility and information asymmetry exhibited lower correlations with both groups of entrepreneurs thus explaining the reasons for the lack of significant differences.

SUMMARY AND DISCUSSION

The literature on how and why entrepreneurs choose their business venture includes a wide variety of factors. The results of this survey add to the literature in identifying variables that both support and extend this new perspective on entrepreneurial decision-making. Specifically we have identified influences on entrepreneurial awareness as a precursor to entrepreneurial behavior among both internally and externally stimulated entrepreneurs.

Empirical results for the study hypothesis provide support for the idea that entrepreneurs, as a group, receive motivations in different ways. The literature supports the idea that internal and external motivation affects the variable set used by an entrepreneur.

The motivations of entrepreneurs and the variables that affect their decision processes are critical to understanding the continued growth of a capitalistic economy. The results of this research provide support for the idea that there are both similarities and differences in the correlates of entrepreneurial awareness as a precursor to recognition of entrepreneurial opportunity among those who are stimulated toward entrepreneurial behavior by internal factors and those motivated externally. Additional research is needed to further define and validate this research. Through better understanding of the entrepreneurial process, profiles can be developed as well as mechanisms used to better aid entrepreneurs in their venture formation process. In addition, organizations that facilitate the entrepreneurial process including the Small Business Administration (SBA), the National Association of Women Business Owners (NAWBO), as well as the Service Corps of Retired Executives (SCORE) can better aid entrepreneurs in the formation process, if the motivations and influences on entrepreneurial awareness are better understood.

REFERENCES

Ardichvili, A., Cardozo, R. & Ray, S. (forthcoming). A theory of entrepreneurial opportunity identification and development. *Journal of Business Venturing.*

Bhavé, M. (1994). A process model of entrepreneurial venture creation. *Journal of Business Venturing, 9*(2), 223-242.

Cyert, R.M. & March, J.G. (1963). *A Behavioral Theory of the Firm.* Englewood Cliffs, N J: Prentice Hall.

D'Ambroise, G. & Muldowney, M. (1988). Management theory for small business: Attempts and requirements. *Academy of Management Review, 13*(2), 226-240.

Forlani, D. & Mullins, J. W. (2000). Perceived risks and choices in entrepreneur's new venture decisions. *Journal of Business Venturing, 15*, 305-322.

De Koning, A. (1999). *Conceptualizing Opportunity : Recognition as a Socio-Cognitive Process*. Stockholm: The Centre for Advanced Studies in Leadership.

Hayek, F. (1945). The use of knowledge, *American Economic Review. 35*(4), 519-530.

Hills, G., Lumpkin, G. T. & R. P. Singh. (1997). Opportunity recognition: Perceptions and behaviors of entrepreneurs. *Frontiers of Entrepreneurship Research*. Wellesley, Ma: Babson College.

Krueger, N. J. & Brazeal, D. H. (1994). Entrepreneurial potential and potential entrepreneurs. *Entrepreneurship: Theory and Practice, 19*, 91-104.

Krueger, N. J. & Dickson, P. R. (1994). How believing in ourselves increases risk-taking: Perceived self-efficacy and opportunity recognition. *Decision Sciences, 25l,* 385-400.

Monk, C. (2002). Starting up when things are turning down, *Management Today,* February 60-62.

Palich, L. E. & Bagby, D. R. (1995). Using cognitive theory to explain entrepreneurial risk-taking: Challenging conventional wisdom. *Journal Of Business Venturing, 10*, 425-438.

Porter, M.E. (1980). *Techniques for Analyzing Industries and Competitors: Competitive Strategy.* London: Collier Macmillan Publishers.

Ray, S. & Cardozo, R. (1996). Sensitivity and creativity in entrepreneurial opportunity recognition: A framework for empirical investigation. Presented At The Sixth Global Entrepreneurship Research Conference. Imperial College, London.

Shane, S. (2000). Prior knowledge and the discovery of entrepreneurial opportunities. *Organization Science, 11*, 448-469.

Sigrist, B. (1999). Entrepreneurial opportunity recognition. A Presentation at the Annual UIC/AMA Symposium at Marketing/Entrepreneurship Interface. Sofia-Antipolis, France.

Simon, M., Houghton, S. & K. Aquino. (1999). Cognitive biases, risk perception, and venture formation: How individuals decide to start companies. *Journal Of Business Venturing, 15,* 133-134.

Von Hippel, E. (1994). 'Sticky information' and the locus of problem solving: Implications for innovation. *Management Science, 40*(4), 429-439.

Wendorf, C. A. (2002). *Manuals for Univariate and Multivariate Statistics.* www.uwsp.edu/psych/cw/statmanual.

Winslow, E. K. & Solomon, G. T. (1993). Entrepreneurs: Architects of innovation, paradigm pioneers and change. *Journal Of Creative Behavio,r 27*(2), 75-88.

Yates, J. F. & Stone, E. R. (1992). The risk construct. In J.F. Yates, (Ed.), *Risk-Taking Behavior,* West Sussex, England: John Wiley & Son.

THE ENTREPRENEURS' TECHNOLOGY ACCEPTANCE MODEL

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ABSTRACT

Adapting the Technology Acceptance model (TAM) this research examines technology usage of entrepreneurs, a distinct and important group, which researchers have found to exhibit unique traits. Because of these peculiar traits, this research believes that a separate TAM test, which also investigates the moderation effect of these traits on entrepreneurs' technology usage, is warranted. This research is set in an emerging economy, and cross cultures like Malaysia - a one-off multi-racial society made up of the Chinese, the Indians, the Malays, and other racial groups. Findings are that technology usage is influenced directly by perceived usefulness and indirectly by perceived ease of use. There is no direct relationship between ease of use and usage. Innovativeness and Perseverance were found to moderate the impact of perceived usefulness and perceived ease of use respectively on usage, thus providing the basis for the integration of innovativeness and perseverance into the technology acceptance model. The resulting model is termed 'The Entrepreneur Technology Acceptance Model' (ETAM)

INTRODUCTION

This research adopts the Technology Acceptance Model (TAM) to examine the use of information technologies by entrepreneurs and the moderating impact of entrepreneurial traits. TAM theorizes that perceived usefulness (directly) and perceived ease of use (directly and indirectly via usefulness) influence attitude and intention to use technologies. In this work, actual usage (Ndubisi et al., 2001; Szajna, 1994) rather than usage intention (Davis, 1989; Davis et al., 1989) were used based on calls (e.g., Venkatesh, 2000) for future research using actual usage instead of usage intention to measure technology usage. The focus on entrepreneurs is precipitated by the sad fact that in spite of the long list of TAM replications, there is no known study focusing on entrepreneurs - a distinct and peculiar IT user group. Being small in size, most entrepreneurs are short of resources, capital, and expertise, which constrain exorbitant employment and experimentation with sophisticated technologies. Secondly, entrepreneurs have been reported in many personality and psychological research as exhibiting unique traits that distinguishes them from other users. These traits could have different implications on their adoption or sustained usage of information technologies.

THEORY AND MODEL DEVELOPMENT

Several models have been developed to investigate and understand the factors affecting the acceptance of computer technology in organisations. The theoretical models employed to study user acceptance, adoption, and usage behaviour include the Theory of Reasoned Action - TRA (e.g., Fishbein & Ajzen, 1975; Ajzen & Fishbein, 1980), the Technology Acceptance Model - TAM (e.g., Davis, 1989; Davis et al., 1989), the Theory of Planned Behaviour - TPB (e.g., Ajzen, 1991; Mathieson, 1991), the Model of PC Utilisation (Thompson, Higgins & Howell, 1991), the Decomposed Theory of Planned Behaviour (e.g., Taylor & Todd, 1995a), and Innovation Diffusion Theory (e.g., Agarwal & Prasad, 1997; Brancheau & Wetherbe, 1990; Rogers, 1995). Some of these studies were carried out at the individual level (e.g., Agarwal & Prasad, 1998), and some at the organisational level (e.g., Cooper & Zmud, 1990). Current research has focused on the TAM not only because it more popular than the rest of the models, but more importantly because the research seeks to understand the relationship between perceptions (such as perceived usefulness and perceived ease of use of technologies) and usage behaviour of entrepreneurs.

The Technology acceptance Model (TAM) has been widely used to predict user acceptance and use based on perceived usefulness and ease of use. Davis (1989), and Davis et al. (1989) developed the TAM by adapting the Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975; Ajzen & Fishbein, 1980), to understand the causal chain linking external variables to IT usage intention and actual use in a workplace. TAM was developed under contract with IBM Canada Ltd. in the mid-1980s where it was used to evaluate the market potential for a variety of then-emerging PC-based applications in the area of multimedia, image processing, and pen-based computing in order to guide investments in new product development (Davis & Venkatesh, 1996). Many IT studies have replicated TAM or used TAM instrument (which has empirically proved to have high validity) extensively to investigate a range of issues in the area of user acceptance (e.g., Mathieson, 1991; Moore & Benbasat, 1991; Trevino & Webster, 1992; Adams, Nelson & Todd, 1992; Segars & Grover, 1993; Chin & Gopal, 1993; Sjazna, 1994; Igbaria et al., 1997). MIS researchers have used TAM and TRA as a theoretical foundation to conduct research on those factors that affect the user acceptance of IT (Igbaria, 1992), but the current work modifies TAM in order to formulate a model for entrepreneurs that accounts for their unique traits.

TAM is acclaimed for its parsimony and predictive power which make it easy to apply in different situations. However, there have been some reservations as well. Venkatesh (2000) writes that while parsimony is TAM's strength, it is also the models important constraint. According to Venkatesh, while TAM is very powerful in helping to predict acceptance, it does not help understand and explain acceptance in ways that guide development beyond suggesting that system characteristics impact usefulness and ease of use thereby placing a limitation on the ability to meaningfully design interferences to promote acceptance. Mathieson (1991) believes that TAM is predictive but its generality does not provide sufficient understanding from the standpoint of providing system designers with the information necessary to create user acceptance of new systems. Furthermore, there has been some concern about the predictive ability of TAM. Straub et al. (1995) questioned intention as a predictor of actual behaviour. Bentler and Speckart (1979), and

Songer-Nocks, (1976) earlier disagreed with Fishbein and Ajzen's assertion that attitudes and norms can influence behaviour only indirectly through behavioural intention.

The issue of TAM's predictive ability may not be critical given that there is a significant body of research in IS (Taylor & Todd, 1995), organisational behaviour (Venkatesh & Morris, 2000), and psychology (Sheppard et al., 1988) supporting intention as a predictor of actual behaviour. Nevertheless, the present research has used actual usage behaviour of entrepreneurs as the dependent variable. Mathieson (1991) tested the validity of TAM via an experimental study on usage of spreadsheets and calculator. He compared TAM with TPB to predict an individual's intention to use an information system. The study found that both TAM and TPB predicted this well, although TAM was more general and easier to use.

Adams et al. (1992), subsequently replicated Davis' TAM in two studies. The purpose of these studies were to focus on evaluating the psychometric properties of the ease of use and the usefulness scales while examining the relationship between ease of use, usefulness and system usage. The results of the studies demonstrated reliable and valid scales for measurement of perceived ease of use and usefulness. It indicated the importance of both factors and suggested that usefulness is an important determinant of system usage. The finding is also consistent with the original TAM proposed by Davis (1989), however, Adams et al. (1992) called for more research on this model because there are limited studies in this area. They suggested that a variety of factors, such as user experience and characteristics, type or sophistication of system use, and other task characteristics might mediate the relationship among ease of use, usefulness and usage, and called for future research to be geared towards the replication, refinement and development of this model and measures to address these factors.

In turn, Igbaria (1992) agrees that Davis' TAM model provided good insights into the user acceptance of IT. Thus Igbaria went on to extend this model to include other external factors (such as individual and organisational characteristics), endogenous variables (such as computer anxiety, perceived usefulness, attitudes, behavioural intentions to use), and actual system use among managers. The purpose of Igbaria (1992) study was to test this integrated model of user acceptance, incorporating variables found to consistently explain and predict acceptance and success of IT across studies.

The list of TAM studies and replications is a long one. In spite of these adaptations and replications, the current study is not aware of any serious work that is focussed on entrepreneurs using actual usage behaviour (save for Ndubisi et al., 2001) as a measure of usage. Most of the previous TAM studies have measured usage based on intention, a step that have been questioned by some researchers. In view of this, present study has adopted TAM as a theoretical foundation for examining the moderation effect of entrepreneurs' traits on the relationship between perceptions and actual usage behaviour.

Entrepreneurial Traits

The traits suggested by empirical research which describe entrepreneurs are: (1) high need for achievement (Decarlo & Lyons, 1979; Hornaday & Aboud, 1971; among many others); (2) internal locus of control (Hornaday & Aboud, 1971; Miller, 1983); (3) high need for independence

and effective leadership (DeCarlo & Lyons, 1979; Hornaday & Aboud, 1971); (4) high need for autonomy (DeCarlo & Lyons, 1979; Sexton & Bowman, 1983, 1984); (5) information processing capability (McGaffey & Christy, 1975); (6) preference for moderate level risks (McBer & Co., 1986); (7) low conformity (DeCarlo & Lyons, 1979; Sexton & Bowman, 1983, 1984); (8) aggression, support, and benevolence (Decarlo & Lyons, 1979); (9) high energy level, risk-taking, and change (Sexton & Bowman, 1983, 1984); (10) dominance, endurance, innovation, self-esteem, low anxiety level, and cognitive structure (Sexton & Bowman, 1983); and (11) low interpersonal effect, social adroitness, low harm avoidance, and low succorance (Sexton & Bowman, 1984).

Yonekura (1984) in the discussion paper on "Entrepreneurship and Innovative Behaviour of Kawasaki Steel" suggested the following traits: assertiveness, insistence, forward-looking, critical thinking, creativity, innovation, continuity, preparedness, responsibility, open-mindedness, etc. Burch (1986) mentioned nine salient traits, which dictated a high propensity for one to behave entrepreneurially. They are: a desire to achieve, hard work, nurturing quality, able to accept responsibilities, reward oriented, optimistic, excellence-oriented, an organiser, and money oriented. Wells (1994) found the following traits: they are proactive, they are motivated by a need for high achievement, and they demonstrate commitment. Kitchel (1997) reported the following traits, innovativeness, risk-taking propensity, perseverance, and flexibility, while Jantan et al. (2001) excluded risk-taking propensity and flexibility from the Kitchel's list.

From the above, we can see the various traits that researchers have found among entrepreneurs at various times in separate studies. After a review of the relevant literature (Jantan et al., 2001; Harper, 1996; Wells, 1994; McBer & Co., 1986; Burch ,1986; Yonekura, 1984; Miller, 1983; Sexton & Bowman, 1983; 1984; Decarlo & Lyons, 1979; McGaffey & Christy, 1975; Hornaday & Aboud, 1971) this study postulates that entrepreneurial traits such as; innovativeness and perseverance or persistence moderate the relationship between perceived usefulness and perceived ease of use (on one hand) and ICT usage on the other hand. The selected traits are the more common and consistently reported ones in all the studies reviewed earlier and may have different implications on the validity of TAM among entrepreneurs. Moreover, the need to study user characteristics and its effect on the relationship between perception and usage was earlier highlighted by Adam et al. (1992) and Ndubisi et al. (2001). Figure 1 is the schema of the study model.

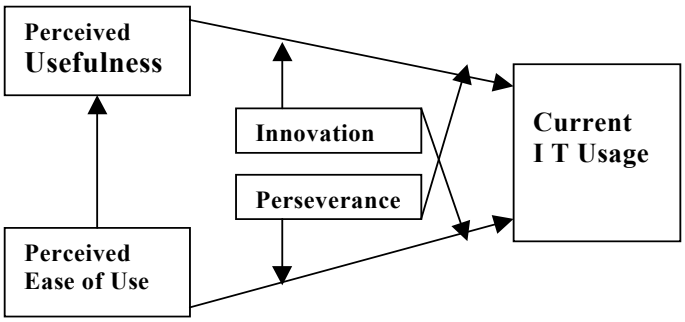
Innovation

The entrepreneurial role has long been recognized as a prime source of innovation or creativity. For many entrepreneurs, the basic drive is creativity and innovation to build something out of nothing. They are always looking for something unique to fill a need or want. Thus the more innovative the entrepreneur is, the more positive his beliefs, and in turn technology usage. Researchers have found that the entrepreneur does not perform well in bureaucracies, for example, DeCarlo & Lyons 1979; Sexton & Bowman 1983; and 1984 have reported that entrepreneurs have low conformity. The influence of innovativeness on technology usage is one of the issues that current research will explore.

Perseverance/Persistence

Collins English Dictionary defines perseverance as continued steady beliefs or efforts. Put differently, it is the ability to continue doing something one believes in for an extended period, enduring difficulty, and finding a way to work-around obstacles. Jantan et al. (2001) similar to Kitchel (1997) found that CEOs with high perseverance level keep on working on achieving goals despite repeated failures. Thus, it is opined that perceived usefulness, ease of use, and subsequently usage of IT, will be greater among more persistent entrepreneurs as they continue adoption.

Figure 1: TAM with Innovativeness and Perseverance Moderating



HYPOTHESES

The following fundamental hypotheses are tested in the study:

H1:	*The more IT is perceived as useful, the more will be its usage.*
H2:	*The more IT is perceived as easy to use, the more will be its usage.*
H3:	*There is an indirect positive relationship (via usefulness) between ease of use and IT usage.*
H4a:	*The impact of perceived usefulness on IT usage is greater among more innovative entrepreneurs.*
H4b:	*The impact of perceived ease of use on IT usage is greater among more innovative entrepreneurs.*
H5a:	*The impact of perceived usefulness on IT usage is greater among more persistent entrepreneurs.*
H5b:	*The impact of perceived ease of use on IT usage is greater among more persistent entrepreneurs.*

METHOD

Sampling Frame & Procedure

Malaysian entrepreneurs and members of the Entrepreneurs Development Unit of the Prime Minister's Department and the National Association of Women Entrepreneurs of Malaysia (NAWEM) were surveyed using structured questionnaire. A total of 295 questionnaires were sent out and 177 usable responses were received, which translates to 60% response rate. Respondents engage in various activities, from manufacturing, to sales, education, designing, construction, etc. Entrepreneurs were surveyed using structured questionnaire made up of four parts. Part 1 measures the actual system usage with three indicators (such as use of a wide variety of software packages in CBIS environment; the number of business task performed using systems; and frequency of system usage) taken from Rahmah & Arfah (1999). Parts 2 and 3 respectively measure perceived usefulness and perceived ease of use with items taken from Davis et al. (1989) and Ndubisi et al. (2001). Measures of perceived usefulness in this study are perceptions that using IT will increase productivity, improve job performance, enhance job effectiveness, and be useful in the job; and perceived ease of use is measured in terms of how clear and understandable is the interaction with system, ease of getting the system to do what is required, mental effort required to interact with the system, and ease of use of the system. Part 4 measures the traits of entrepreneurs (such as innovativeness and perseverance) using items adapted from Harper (1996) and Kitchel (1997). Albeit, these items have been validated in the above studies respectively, they were re-validated in the current study using factor analysis. The results are tabulated in Table 1 below.

RESULTS AND DISCUSSION

Psychometric Properties of the Instruments

Confirmatory Factor Analysis was performed where necessary on the individual items contained in the questionnaire in order to establish their suitability for performing the multivariate analyses used. A principal components analysis (PCA) was also used for data reduction to examine the factor structure and help the measures conform to recommended levels of reliability. The results presented here are based on parsimonious sets of variables, guided by conceptual and practical considerations: (a) the acceptance of factor loadings of approximately .50 and above - this level is considered practically significant (Hair, et al., 1998), (b) most of the cross-loadings falling below .20. The oblique factor rotation was employed for this analysis because it represents the clustering of variables more accurately (Hair et al., 1995, 382), and because the factors need not be uncorrelated and may even be conceptually linked, which requires correlation between the factors (Hair et al., 1998, 127). This technique of rotation is more suitable for our needs than the orthogonal rotation, which keeps factors uncorrelated throughout the rotation process.

Although the observed patterns of item loadings are similar for both Oblique rotation (adopted in this study) and Varimax (alternative technique), giving us grounds to assume that the instruments are consistent, the internal consistency of the instruments were further tested via

reliability analyses. Firstly, reliability analyses were conducted on the factors extracted, each yielding a Cronbach's alpha coefficient of more than .85. High communality values were observed for all the variables, indicating that the total amount of variance an original variable shares with all other variables included in the analysis is high. Table 1 shows the summaries of the results of rotated factors and item loadings of ICT usage, perceived usefulness, perceived ease of use, innovativeness, and perseverance.

Table 1: Rotated Factors and Item Loadings - Oblique Method

Items	Factors					Communalities
	F1	F2	F3	F4	F5	
System varieties	.833	-.073	.077	-.047	-.093	.748
Job tasks	.793	-.190	.055	.047	.033	.803
Usage Frequency	.824	.099	-.051	-.021	.064	.658
Improvement in job performance	.107	-.914	.105	.052	-.072	.865
Increase in productivity	-.105	-.854	.104	-.124	-.070	.830
Enhancement of job effectiveness	.136	-.792	.032	-.071	.051	.826
Usefulness in job	.117	-.546	-.212	-.224	.334	.733
Clear and understandable interaction with system	-.285	-.272	-.664	.106	.041	.784
Easy to get system do what is wanted	-.103	-.104	-.785	.156	-.033	.758
Interaction does not require a lot of mental effort	.065	.358	-.852	-.202	.018	.807
System is easy to use	-.037	.001	-.865	.088	.068	.851
Acting to diversify business, product, etc.	.011	.150	-.183	.643	-.177	.720
Finding a unique way to solve problems	.206	.078	.020	.761	-.084	.818
Producing innovative solutions	.265	-.008	-.269	.656	-.015	.793
Trying out innovative ideas	.206	.213	-.073	.601	.082	.693
Looking for ways to get around obstacles	.115	-.018	.093	-.032	.707	.665
Don't easily give up	.116	.107	.000	-.099	.833	.778
Always look at alternative ways to handle a task	-.152	-.135	.101	-.024	.839	.751
Trying out alternative solutions	.209	.159	.284	.166	.626	.741

F1-Usage F2-Perceived Usefulness
F3-Perceived Ease of Use F4-Innovativeness
F5-Perseverance

The factor analyses results show that items measuring the construct dimensions are valid. Reliability analyses show the following Cronbach's Alpha values: Usage (.86), Perceived Usefulness (.90), Perceived Ease of Use (.88), innovativeness (.88), and perseverance (.86). All the reliability test results in this study show alpha values exceeding .60 to .70 recommended by Hair et al. (1998) as the lower limit of acceptability, ensuring that the items grouping for the respective variables are reliable under the conditions of the local survey. The mean and standard deviation of the traits factors are respectively 14.50 and 3.40 for innovativeness, and 16.03 and 2.85 for perseverance.

Hypotheses Testing

The Hierarchical Multiple Regression Model (Abrams, 1999) was employed to predict the relationships in the construct.

Perceived Usefulness, Ease of Use, and Usage

Tables 2 and 3 summarize hypotheses 1, 2 and 3.

Table 2: Perceived Usefulness & Ease of Use on Usage.

Perception	Beta Coefficients	t-value	P-value
Usefulness	.462	4.823	.000
Ease of Use	-.052	-.542	.588
R^2 = .183	Adjusted R^2 = .173		Durbin Watson = 1.836

The adjusted coefficient of determination (Adjusted R^2) for the regression is .173, indication that 17.3 percent of the variation in dependent variable (in this case ICT usage) is explained by the independent variables (i.e., perceived usefulness and ease of use). The standardized beta coefficients for perceived usefulness and ease of use are respectively .462, and -.052. The coefficient for perceived ease of use is not significantly different from zero. Hence, it is concluded that perceived usefulness is more important than perceived ease of use in determining usage. The deduction is in line with Davis, 1989; Davis et al., 1989; and many others. Their respective p-values of .000 and .588 for usefulness and ease of use indicates that there is a significant direct positive relationship between perceived usefulness and usage (hypothesis 1) at 1% significant level. On the other hand, no significant direct relationship exists between perceived ease of use and usage (hypothesis 2).

Is there an indirect relationship (through perceived usefulness) between perceived ease of use and usage? In other words, does perceived usefulness mediate the perceived ease of use and usage relationship? The search for an answer to this question led to another regression analysis, that hierarchically regressed ease of use (step 1), and usefulness (step 2) against usage. According to Baron and Kenney (1986, 1176), a variable functions as a mediator when it meets the following conditions: (a) variations in levels of the independent variable significantly account for variations

in the presumed mediator, (b) variations in the mediator significantly account for variations in the dependent variable, and (c) when a and b are controlled, a previously significant relation between the independent and dependent variables is no longer significant or it is significantly decreased. If Z = dependent variable, X = Independent variable, and Y = Intervening variable,

$Z = f(X) = a+bX$ ….(1) $Z = f(Y) = e+fY$ …..(3)	$Y = f(X) = c+dX$ ….....(2) $Z = f(X,Y) = g+hX + jY$ …..(4)
Full Effect:	Partial Effect
* $b \neq 0$	* $b \neq 0$
* $d \neq 0$	* $d \neq 0$
* $f \neq 0$ also $j \neq 0$	* $f \neq 0$ also $j \neq 0$
* $h = 0$	* $h \neq 0$ but $h < b$

Table 3: Ease of Use and Usage with Perceived Usefulness mediating				
Perception	Beta Coefficients without usefulness (model 1)		Beta Coefficients with usefulness (model 2)	
Ease of use	.271**		-.052	
	R^2 = .074	Adjusted R^2 = .068	R^2 = .183	Adjusted R^2 = .173
** = Significant at 1% level				

The beta coefficient for model 1 is significantly higher than that of model 2. Coupled with the increase in Adjusted R^2 of .105 (i.e., .173 - .068) explain the mediation effect of usefulness on the relationship between ease of use and usage. There is therefore an indirect positive relationship between perceived ease of use and usage via usefulness. There is validity for hypothesis 3.

Moderating Effect of Innovativeness

Moderating effect of respondent's innovativeness was analysed using moderated regression, the results of which are tabulated in Table 4 below.

Table 4: Moderation Effect of Innovativeness (coefficients)			
Interaction Term	Beta	t-value	p-value
Usefulness*Innovativeness	1.082	1.981	.049
Ease of Use*Innovativeness	.370	.662	.509
R^2 = .440	Adjusted R^2 = .424		

The adjusted coefficient of Determination (Adjusted R^2) for the regression without interaction term is 0.393, while the adjusted coefficient of determination for the regression with interaction term is 0.424. This increase in adjusted R^2 (.031) is explained by the existence of interaction term. Thus the explanatory power of model 2 (with interaction) is significantly higher than model 1. The adjusted R^2 change of .031 means that 3.1% of the variations in IT usage (dependent variable) is explained by the moderation effect of innovativeness.

From the coefficients table, the following observations are made:

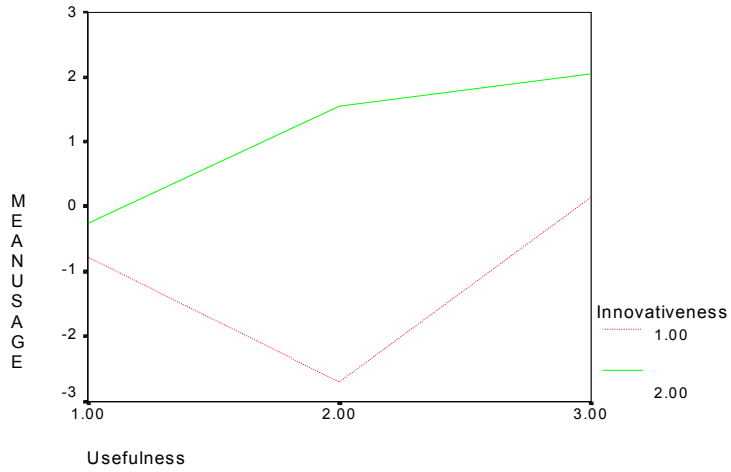
1	*Innovativeness has no significant moderation effect (t-value = .662; p-value = .509) at five percent significance level, on the relationship between perceived ease of use and IT usage. Hence, there is no validity for hypothesis 4b.*
2	*There is a significant moderation effect of innovativeness in the relationship between perceived usefulness and IT usage. With t-value of 1.981 and p-value of .049, a significant moderation effect exists at 5 percent significant level. There is significant evidence for the validity of hypothesis 4a.*

Additionally, the nature of this interaction was explored. Further analysis does confirm that innovativeness does play a moderator role in the perceived usefulness and usage relationship. Taking perceived usefulness levels at Low (mean-1σ), Medium (mean), and High (mean+1σ), the corresponding values were obtained and assigned 1, 2, & 3 respectively. Taking innovativeness levels at below mean and above mean, 1 (Low) and 2 (High) were assigned respectively. The resulting levels of usage for different levels of usefulness and innovativeness are as shown in figure 2.

Figure 2 shows that for the highly innovative entrepreneurs (group 2), IT usage will increase as usefulness increases. For the highly innovative individual, the impact of perceived usefulness on usage is always positive. The highly innovative entrepreneurs increase usage as perceived usefulness increases. From low to medium to high levels of usefulness usage remains positive. On the other hand, for the low innovative respondents, the impact of usefulness is first negative and then becoming positive beyond moderate level of usefulness. From low to medium level of usefulness, mean usage for this group is negative and declining, but took an upward turn only after moderate level of usefulness is reached. Contrary to the highly innovative entrepreneurs who tend to react earlier to the increase in usefulness, the less innovative ones may probably wait until they are convinced (mostly at high levels) that the system is useful before any positive impact is made on usage.

There was further probe to see if there is any differences in mean IT usage by the high and low innovative entrepreneurs. Significant difference was found in mean usage for both categories of entrepreneurs at various levels of usefulness at 1 percent significant level. Hence, the influence of perceived usefulness on usage is more robust for the highly innovative entrepreneurs. The results in Tables 5a and b buttress the trend shown in figure 1. Hence, there is evidence to support the proposition that the impact of perceived usefulness on usage is greater among the more innovative entrepreneurs. In other words, innovativeness moderates the relationship between perceived usefulness and usage of technologies.

Figure 2: Mean Usage at Different Levels of Usefulness and Innovativeness



Note: Usefulness: 1 = low level of usefulness; 2 = medium level; and 3 = high level
Innovativeness: 1 = low level of innovativeness; 2 = high level

Table 5a: ANOVA
Test of differences in mean usage for highly innovative entrepreneurs

Usage	Sum of Squares	df	Mean Square	F	Significance
Between groups	104.673	2	52.336	17.449	.000
Within groups	290.949	97	2.999		
Total	395.622	99			

Table 5b: ANOVA
Test of differences in mean usage for less innovative entrepreneurs

Usage	Sum of Squares	df	Mean Square	F	Significance
Between groups	77.265	2	38.633	7.370	.001
Within groups	387.878	74	5.242		
Total	465.144	76			

Moderating Effect of Perseverance

Moderating effect of perseverance was also analysed using moderated regression, the results of which are tabulated in Table 6 below.

Table 6: Moderation Effect of Perseverance (coefficients)

Interaction Term	Beta	t-value	p-value
Usefulness*Perseverance	-.132	-.194	.846
Ease of Use*Perseverance	1.771	2.799	.006
R^2 = .400		Adjusted R^2 = .383	

The Adjusted R^2 for the regression without interaction term is 0.340, while the Adjusted R^2 for the regression with interaction term is 0.383. This increase in R^2 is explained by the existence of the interaction term. Thus the explanatory power of model 2 (with interaction) is higher than model 1 (without interaction). The adjusted R^2 change of .043 means that 4.3% of the variations in IT usage (dependent variable) is explained by the moderation effect of perseverance.

From the coefficients table, it could be observed that:

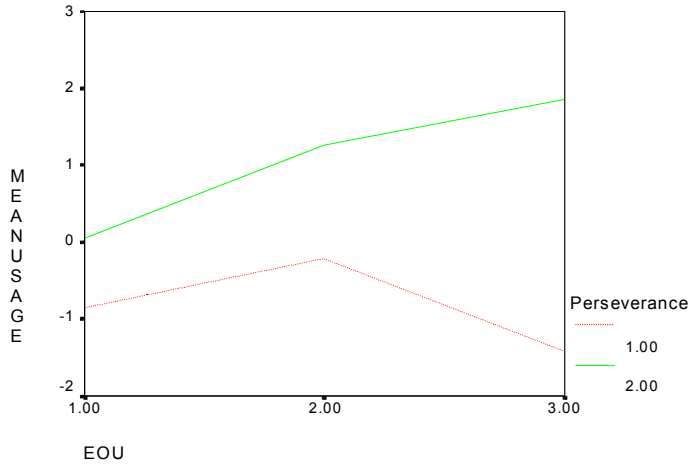
1	*Perseverance has no significant moderation effect (t-value = -.194; p-value = .846) at five percent significant level, on the relationship between perceived usefulness and IT usage. Therefore hypothesis 5a is invalid.*
2	*There is a significant moderation effect in the relationship between perceived ease of use and IT usage. With t-value of 2.799 and p-value of .006, a significant moderation effect exists at 1 percent significant level. Hence, there is validity for hypothesis 5b.*

Additionally, the nature of this interaction was explored. Further analysis does confirm that perseverance does play a moderator role in the perceived ease of use and usage relationship. Taking perceived ease of use levels at Low (mean-1σ), Medium (mean), and High (mean+1σ), the corresponding values were obtained and assigned 1, 2, & 3 respectively. Taking perseverance levels at below mean and above mean, 1 (Low) and 2 (High) were assigned respectively. The resulting levels of usage for different levels of ease of use and perseverance are as shown in figure 3.

Figure 3 shows that for the high perseverance entrepreneurs (group 2), technology usage will increase as ease of use increases. The highly persistent entrepreneurs seem to increase their usage the more they perceive the system to be easy to use. But it is not so with the less persistent entrepreneurs (group 1). From low to high levels of ease of use, mean usage for this group shows no significant difference (see Table 6b). Therefore for the less persistent entrepreneurs, it makes no difference on usage whether or not the system is easy to use. Contrary to the high perseverance

entrepreneurs who tend to react earlier to the increase in ease of use, the less persistent ones show signs of indifference to the increase in ease of use of technologies.

Figure 3: Mean Usage at Different Levels of Ease of Use and Perseverance



Note: Ease of Use (EOU): 1 = low level of EOU; 2 = medium level; and 3 = high level
Perseverance: 1 = low level of Perseverance; 2 = high level

Further probe into the mean differences in technology usage among the high and low perseverance entrepreneurs, showed a significant difference in mean usage for the high perseverance entrepreneurs (at 1 percent significant level) at different levels of ease of use, and no significant difference in usage among the less persevering group. Therefore, among the latter group of entrepreneurs, increase in ease of use in itself will not bring about greater usage - it has to be blended with perseverance on the part of the entrepreneur. The results in Tables 6a and b buttress the trend shown in figure 3.

Table 6a: ANOVA
Test of differences in mean usage for high perseverance entrepreneurs

Usage	Sum of Squares	df	Mean Square	F	Significance
Between groups	42.221	2	21.111	5.326	.007
Within groups	293.295	74	3.963		
Total	335.516	76			

The ANOVA result shows that there is a significant difference (F-value = 5.326; p-value. = .007) in the mean usage of IT at various levels of ease of use for high perseverance entrepreneurs.

Therefore it makes a difference to mean usage if ease of use is low, medium, or high for the high perseverance entrepreneurs.

Table 6a: ANOVA
Test of differences in mean usage for low perseverance entrepreneurs

Usage	Sum of Squares	df	Mean Square	F	Significance
Between groups	21.690	2	10.845	1.647	.198
Within groups	638.867	97	6.586		
Total	660.558	99			

The One-way ANOVA result shows that there is no significant difference (F-value = 1.647; p-value = .198) in the mean usage of IT at various levels of ease of use for low perseverance entrepreneurs. Therefore it makes no difference to the mean usage if ease of use is low, medium, or high for the low perseverance entrepreneurs.

IMPLICATIONS

The present study has theoretical implication in that it presents convincing evidence to understand the way in which entrepreneurs adopt, use, and increase usage of technologies. The outcome of present research validates some of the TAM constructs among Malaysian entrepreneurs except for the perceived ease of use and usage relationship. The study found that perceived usefulness has a direct positive relationship with IT usage, and perceived ease of use has an indirect positive relationship (via usefulness) with usage. However, perceived ease of use has no significant direct relationship with usage, a result that violates one of TAM's important relationships. Two plausible explanations to this could be that (1) ease of use may not be an important determinant of continued or increase usage as would initial adoption, and (2) as entrepreneurs continue to persevere, it is only a matter of time for applications to become easy to use. This research also found evidence for the moderating impact of innovativeness and perseverance on the relationship between perceived usefulness and usage, and ease of use and usage respectively. This evidence justifies the call for the extension of TAM to account for this moderation effect.

This research has implications for systems designers and vendors. Firstly, they need to take note of the importance of perceived usefulness and perceived ease of use when designing systems targeted at entrepreneurs. Designers and vendors targeting entrepreneurs must not toy with these two important drivers of usage. They should not only design and sell useful systems, but also user friendly ones, after all easy to use systems were deemed useful systems. They must recognize the extent of the impact of such traits as innovativeness and perseverance on the relationship between perceived usefulness, ease of use and usage. Firstly, if designers and vendors are not careful, they may fall to the deception that all entrepreneurs will increase usage even at low levels of usefulness, while in actual fact it is only the highly innovative ones who may increase usage at low levels of usefulness. The less innovative ones will only increase usage at high levels of usefulness, perhaps when they are very certain that the system will be useful to them. If this is the case, designers and

vendors will be better off if they concentrate more on the highly innovative entrepreneurs in their marketing efforts during the introductory stage of a system, and turn to the less innovative ones a while later, when the system is fairly known and has saturated the market. Secondly, designers and vendors need to note that achieving high level of ease of use will not by itself alone deliver the patronage of all entrepreneurs. Perseverance on the part of the entrepreneur is needed, and this is why the less persistent entrepreneurs were found not to be increasing usage as ease of use increases, but the more persistent ones increased usage at every increase in ease of use. It is thus suggested that system designers and vendors should target the highly persistent entrepreneurs more with their user-friendly systems, by committing more of their marketing efforts and resources on the more persistent entrepreneurs.

WEAKNESSES AND STRENGTHS OF PRESENT RESEARCH

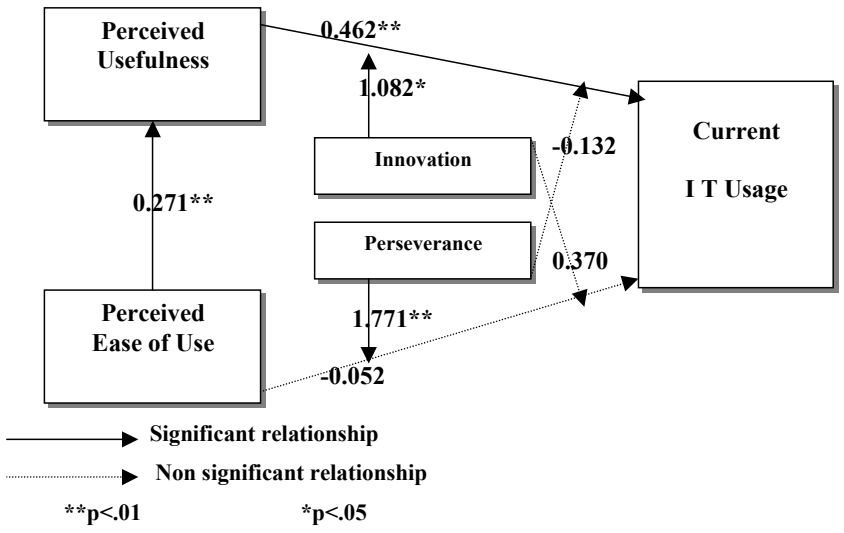
The study relied on the membership of the two entrepreneurs associations in Malaysia to discriminate among the ubiquitous small businesses in Malaysia who qualifies as an entrepreneur and who doesn't. This inclination may exclude genuine entrepreneurs who are not members. Future research should attempt to define entrepreneurship and entrepreneur to include all who qualify. Moreover, future research should include other (less) suggested entrepreneurs traits such as risk-taking propensity, flexibility, etc. to see if they have any significant moderating impact that should be recognized in the proposed model.

Some of the strengths of the study are listed. It is based on theory grounded on existing management information system studies. The data are based on a poll of entrepreneurs with diverse values and belief systems (Chinese, Indians, and Malays) who are officially recognised as Malaysian entrepreneurs by their membership of a nationally and internationally acknowledged entrepreneur associations or bodies. These entrepreneurs are current IT users and their actual usage behaviour rather than usage intention was measured, as a result, researchers (e.g., Straub et al., 1995; Bentler & Speckart, 1979; Songer-Nocks, 1976) who are doubtful about the ability of intention to predict actual behaviour will have nothing to worry about the findings and applicability of this research, which is based on current usage (i.e., actual usage behaviour). Lastly, albeit validated items were used to measure the dimensions in the construct, they were re-validated and tested for reliability via factor and reliability analyses to ensure parsimony and consistency.

CONCLUSION

IT usage was influenced by perceived usefulness. Perceived ease of use has influence on usage indirectly via perceived usefulness. There is no direct relationship between ease of use and usage. Innovativeness and Perseverance were found to moderate the impact of perceived usefulness and perceived ease of use respectively on IT usage. This research provides the basis for the integration of innovativeness and perseverance into the technology acceptance model, as any omission of these two important influences will exaggerate the salience of perceived usefulness and ease of use in determining usage of information technologies by entrepreneurs. The resulting model is termed "The Entrepreneurs Technology Acceptance Model."

Figure 4: Schema of the Proposed Entrepreneur's Technology Acceptance Model with Beta Coefficients



REFERENCES

Abrams, D. R. (1999). *Introduction to Regression 1*, Princeton University Data and Statistical Services. [online], Available: http://www.data@princeton.edu, Updated PHB: July 26.

Adams, D., Nelson R.R., & Todd, P. (1992). Perceived usefulness, ease of use, and usage of information technology: A replication. *MIS Quarterly, 16*(2), 227-248.

Agarwal, R. & Prasad, J., (1997). The role of innovation characteristics and perceived voluntariness in the acceptance of information technologies. *Decision Sciences, 28,* 557-582.

Agarwal, R. & Prasad, J. (1998). A conceptual and operational definition of personal innovativeness in the domain of information technology. *Information Systems Research, 9*, 204-215.

Ajzen, I. (1991). The theory of planned behaviour. Organisational behaviour and human *Decision Processes, 50,* 179-211.

Ajzen, I & Fishbein, M. (1980). *Understanding Attitudes and Predicting Social Behaviour*. Englewood Cliffs, New Jersey: Prentice-Hall Inc.

Baron, R.M. & Kenney, D.A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173-1182.

Bentler, P.M. & Speckart, G. (1979). Models of attitude-behaviour relations, *Psychological Review, 86*, 542-464.

Burch, J.G. (1986). *Entrepreneurship*. New York: Wiley.

Brancheau, J.C. & Wetherbe, J.C., (1990). The adoption of spreadsheet technology: Testing innovation diffusion theory in the context of end-user computing. *Information Systems Research, 1*(2), 115-143.

Chin, W.W & Gopal, A. (1993). An examination of the relative importance of four belief constructs on the GSS adoption decision: A comparison of four methods. Proceedings of the 26th Hawaii International Conference on System Sciences, (pp. 548-557). Los Alamitos: IEEE Computer Society Press.

Cooper, R.B. & Zmud, R.W., (1990). Information technology implementation research: A technological diffusion approach. *Management Science, 36*(2), 123-139.

Davis F.D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13*(3), 319-339.

Davis, F.D., Bagozzi, R. & Warshaw, P.R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science, 35*(8), 982-1003.

Davis, F.D. & Venkatesh V. (1996). A critical assessment of potential measurement biases in the technology acceptance model: Three experiments. *International Journal of Human-Computer Studies, 45*, 19-45.

DeCarlo, J.F. & Lyons, P.R. (1979). A comparison of selected personality characteristics of minority and non-minority female entrepreneurs. *Journal of Small Business Management, 17*, 22-28.

Fishbein, M. & Ajzen, I. (1975). *Belief, Attitude, Intentions and Behaviour: An Introduction to Theory and Research*. Reading, MA: Addison-Wesley.

Hair, J.F., Jr., Anderson, R.E., Tatham, R.L. & Black, W.C. (1998). *Multivariate Data Analysis.* (5th edition), New Jersey: Prentice Hall, Inc.

Harper, D. (1996). *Entrepreneurship and the Market Process*. London: Routledge.

Hornaday, J.A. & Aboud, J. (1971). Characteristics of successful entrepreneurs. *Personnel Psychology, 24,* 141-153.

Igbaria, M. (1992). User acceptance of microcomputer technology: An empirical test. *Omega, 21*(1), 73-90.

Igbaria, M., Zinatelli, N., Cragg, P. & Cavaye, A.L.M. (1997). Personal computing acceptance factors in small firms: A structural equation model. *MIS Quarterly, 21*(3), 279-305.

Jantan, M. Ismail, N. Ramaiyah, T. & Salehuddin, A.H.M. (2001). The CEO and AMT Adoption in Malaysian Small and Medium Scale Manufacturing Industries, Proceedings of the International Conference on Information Technology, 19-22 March, Lausanne, Switzerland, 178MJ.

Kitchell, S. (1997). CEO characteristics and technological innovativeness: A canadian perspective. *Journal of Administrative Sciences, 14*(2), 111-125.

Mathieson, K. (1991). Predicting user intentions: Comparing the technology acceptance model with the theory of planned behaviour. *Information Systems Research, 2*(3), 173-191.

McBer and Co. (1986). *Entrepreneurship and Small-Enterprise Development*. Second Annual Report to the United States Agency for International Development, March 25.

McGaffey, T.N. & Christy, R. (1975). Information processing capability as a predictor of entrepreneurial effectiveness. *Academy of Management Journal, 18*, 857-863.

Miller, D. (1983). The correlates of entrepreneurship in three types of firms. *Management Science, 29*, 770-791.

Moore, G. C. & Benbasat, I. (1991). Development of an instrument to measure the perceptions of adopting an information technology innovation. *Information Systems Research, 2,* 192-222.

Ndubisi, N.O., Jantan, M. & Richardson, S. (2001). Is the technology acceptance model valid for entrepreneurs? Model testing and examining usage determinants. *Asian Academy of Management Journal, 6*(2), 31-54.

Olfman, L. & Bostrom, R.P. (1991). End-user software training: An experimental comparison of methods to enhance motivation. *Journal of Information Systems, 1*, 249-266.

Rahmah, H. & Arfah, Y.I. (1999). Diffusion of internet: Preliminary findings in Malaysia. Paper presented at the workshop "Internet in Vietnam", Hanoi, 29th September - 2nd October, [online] Available at: http://www.interasia.org/malaysia/preliminary.html

Rogers, E.M. (1995). *Diffusion of Innovations*. New York: Free Press.

Segars, A.H. & Grover, V. (1993). Re-examining perceived ease of use and usefulness: A confirmatory factor analysis. *MIS Quarterly, 17*, 517-725.

Sexton, D.L. & Bowman, N. (1983). Determining entrepreneurial potential of students. *Academy of Management Proceedings, 42*, 408-412.

Sexton, D.L. & Bowman, N. (1984). Personality inventory for potential entrepreneurs: Evaluation of a modified JPI/PRF-E test instrument. In Hornaday et al. (1984) Eds. *Frontiers of Entrepreneurial Research*, Wesley, MA: Centre for Entrepreneurial Studies, Babson college.

Sheppard, B.H., Hartwick, J. & Warshaw, P.R. (1988). The theory of reasoned action: A meta-analysis of past research with recommendations for modifications and future research. *Journal of Consumer Research, 15*, 325-343.

Sjazna, B. (1994). Software evaluation and choice predictive validation of the technology acceptance instrument. *MIS Quarterly, 18,* 319-324.

Songer-Nocks, E. (1976). Situational factors affecting the weighting of predictor components in the Fishbein Model. *Journal of Experimental Social Psychology, 12*, 56-69.

Straub, D., Limayem, M. & Karahannan-Evaristo, E. (1995). Measuring system usage: Implications for IS Theory Testing. *Management Science, 41*, 1328-42.

Taylor, S. & Todd, P. (1995). Understanding information technology usage: A test of competing models. *Information Systems Research, 6*(2), 144-176.

Thompson, R.L., Higgins, C. & Howell, J.M. (1991). Personal computing: Toward a conceptual model of utilisation. *MIS Quarterly, 15*(1), 125-143.

Trevino, L.K. & Webster, J.W. (1992). Flow in computer-mediated communication: Electronic mail and voice mail evaluation and impacts. *Communication Research, 19*, 539-573.

Venkatesh, V. (2000). Determinants of perceived ease of use: Integrating control, intrinsic motivation, and emotion into the technology acceptance model. *Information Systems Research, 11,* 342-365.

Venkatesh, V. & Morris, M.G. (2000). Why don't men ever stop to ask for direction? Gender, social influence, and their role in technology acceptance and usage behaviour. *MIS Quarterly, 24*, 115-139.

Wells S.J. (1994) *Learning and Leadership Development of Women Entrepreneurs: An Exploratory Study.* EDD Dissertation, North Carolina State University (0155), 252.

Yonekura, S. (1984). Entrepreneurship and innovative behaviour of Kawasaki Steel: The post world war II period. Discussion paper no. 120, Institute of Business Research, Hitotsubashi University, Kunitachi, Tokyo, Japan.

CREATIVE THINKING OR CONCEPT DEVELOPMENT? THE PROCESS OF RECOGNIZING SUCCESSFUL OPPORTUNITIES FOR TECHNOLOGICALLY COMPLEX NEW VENTURES

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ABSTRACT

What are the relationships among the stages of the opportunity recognition process, the new venture opportunities that entrepreneurs pursue and consider successes, and the level of technological complexity of new ventures? This study reviews the opportunity recognition literature to form research propositions, which are tested empirically with a sample of 189 Midwest entrepreneurs. Previous research (Manion, Hills, Lumpkin & Shrader, 2000) identifies four discrete stages within entrepreneurs' opportunity recognition process: idea discovery, creative thinking, concept development, and informal evaluation. On average, entrepreneurs pursue (i.e., spend time and money on) almost one new venture opportunity per year. Of every five opportunities that entrepreneurs pursue, they consider three successes. Concept development (i.e., the differentiation of entrepreneurs' product and market offerings) is the only process stage that does not directly affect either the number of opportunities that entrepreneurs pursue or those that they consider successes. Technological complexity (i.e., the innovativeness of entrepreneurs and their new ventures and the complexity of their products and production processes) does have a direct positive effect on the number of new venture opportunities that entrepreneurs pursue. However, it does not have a significant direct relationship with the number of opportunities that they consider successes. In relationship to the number of successes, technological complexity has a significant negative interaction with creative thinking and a significant positive interaction with concept development. That is, creative thinking (i.e., the commitment of time and energy to being creative) increases the number of successes with less technologically complex opportunities, but decreases the number of successes with more technologically complex new ventures. In practice, entrepreneurs are likely to pursue more opportunities as a result of the recognition process and their new ventures' technological complexity. However, they are likely to have more successes with the more technologically complex new ventures that they pursue by placing less emphasis on creative thinking and more on concept development. This study provides both a unique empirical exploration of the effects of the level of technological complexity on the recognition of opportunities and a practical prescription for entrepreneurs who wish to succeed with more technologically complex new ventures.

INTRODUCTION

This study explores the stages of the process that entrepreneurs use in recognizing new venture opportunities. It explains the determinants of the numbers of new venture opportunities that entrepreneurs *pursue and consider successes* and how the *technological complexity* of those opportunities affects the stages of the *opportunity recognition process.*

One unique skill of entrepreneurs is their ability to perceive opportunities that others do not see (Kirzner, 1979). In fact, Kaisch and Gilad (1991) show that entrepreneurs are more alert to opportunities than are managers employed by a business. Entrepreneurs' recognition of more opportunities is the result of a complex cognitive process:

> *"The challenge…is recognizing an opportunity buried in the often contradictory data, signals, and inevitable noise and chaos of the marketplace, since the more imperfect the market (i.e., the greater the gaps, asymmetries, and inconsistencies of knowledge and information), the more abundant the opportunities."*
>
> (Timmons, 1990, 1)

Because an opportunity-rich environment tends to be so chaotic, it is worthwhile to explore and map the process by which entrepreneurs recognize opportunities. The process maps are likely to depict more than one path through the *opportunity recognition process*, because not all entrepreneurs pursue opportunities in the same way (Bhave, 1994).

The growing body of entrepreneurship research encompasses the processes involved in new venture formation. The *opportunity recognition process* is among the most important processes in new venture formation (Stearns & Hills, 1996). This study is a significant addition to entrepreneurship research because sustained economic growth depends, in part, on the numbers of opportunities that entrepreneurs recognize to form new ventures that are at higher levels of technological complexity. Bygrave and Hofer (1991) propose that entrepreneurs who perceive opportunities in the current changing environment and create new ventures to pursue them contribute to the economy. Entrepreneurs find that changing environments, such as those that involve higher levels of technological complexity, are rich in new venture opportunities to *pursue*. There are also higher numbers of new venture opportunities *considered successes* by entrepreneurs who have innovated in more technologically complex sectors of the economy.

Schumpeter (1934) and Drucker (1985) describe the role of technological innovation in new venture formation. The following sections include a review of opportunity recognition models that form the basis for a conceptual research model. Research propositions, derived from this framework, relate the independent constructs of opportunity recognition and *technological complexity* to an abundance of venture opportunities (Timmons, 1990). The subsequent analyses focus on the relative importance of these constructs to the numbers of new venture opportunities. The methods for empirically testing the propositions, the statistical techniques, and the sample of entrepreneurs, are described. Finally, this study draws conclusions regarding the propositions and the validity of the conceptual framework. This study identifies the inherent and specific limitations of the analysis and offers suggestions for future research.

LITERATURE REVIEW AND RESEARCH PROPOSITIONS

The conceptual framework for this study is founded on the writings of Schumpeter (1934) and Drucker (1985) on technology and entrepreneurship and on previous studies of the *opportunity recognition process* (Bhave, 1994; Christensen & Peterson, 1990; Koller, 1988; Long & McMullan, 1984; Manion et al., 2000a). The opportunity recognition model, as originally proposed by Manion et al. (2000a), includes four process stages: *Idea Discovery, Creative Thinking, Concept Development*, and *Informal Evaluation*. Though Long and MacMullan (1984) present four process stages in order, Bhave (1994) notes that the "process is iterative…and is not linear or chronological". Therefore, the process of recognizing new venture opportunities is not necessarily sequential.

Certain individual characteristics of entrepreneurs, such as years of experience and education could affect how entrepreneurs pursue opportunities (Chandler & Hanks, 1994). However, Drucker (1985) observes that individual entrepreneurs can succeed even though their personal backgrounds vary a great deal. He proposes that what differentiates successful entrepreneurs from others is that they understand the process of becoming an entrepreneur. Ronstadt (1988) supports Drucker's argument with his finding that many entrepreneurs repeat their successes because they have learned a process not because they possess certain individual characteristics. Therefore, the emphasis of this paper is on the stages of the *opportunity recognition process,* not the entrepreneur's individual characteristics.

Idea Discovery Stage

In the flash of a moment, entrepreneurs may perceive their ideas to start new ventures (Long & McMullan, 1984). The entrepreneurs' sudden discoveries may resemble the "Eureka!" experience, described by Gaglio and Taub (1992); that is, the unexpected appearances of a completely new venture idea from a "veritable stew" of unrelated variables. These authors argue that good entrepreneurial ideas frequently just happen, often resulting from an accidental, rather than an intentional, process.

However, new venture ideas may not come to all entrepreneurs in the same way. Two exploratory studies (Bhave, 1994; Koller, 1988) find that new venture ideas may appear to entrepreneurs either before or after they become motivated to pursue new venture. Of the entrepreneurs that Bhave interviewed, approximately 60% first perceived a need and, after that, found that they could fulfill it by starting a new venture. The remaining 40% of those interviewed first decided to start a new venture and then searched through many potential opportunities for the one that best matched their knowledge, experience, and skills. This finding indicates that if individual characteristics are relevant to opportunity recognition, it is because they relate to entrepreneurs' process of *idea discovery.*

Koller's 1988 survey makes a very similar distinction as to when entrepreneurs' idea discovery occurs. Fifty five percent of those surveyed first perceived or heard about an opportunity, and then relied more on their analytic skills than on their experience in determining whether to pursue it. The remaining 45% of those surveyed first made a conscious decision to become

entrepreneurs, then conducted deliberate searches in familiar areas, and subsequently relied primarily on their own judgment in selecting which opportunities to pursue. In these two exploratory studies, the majority of each sample of entrepreneurs first experienced the appearance of one idea, while the remainder invested time and money in the pursuit of many opportunities.

Given the two different types of entrepreneurs identified by these authors, it is appropriate to test whether the *idea discovery* stage actually occurs as an "Aha!" experience as described by Long and McMullan (1984). Furthermore, it is worthwhile to determine the relationship between entrepreneurs' "Eureka!" experiences and the numbers of new venture opportunities that they *pursue* and that they *consider successes*. Therefore, two research propositions related to the importance entrepreneurs assign to this stage of the *opportunity recognition process* are tested:

Proposition 1a:	*Idea discovery is positively related to the numbers of new venture opportunities that entrepreneurs pursue.*
Proposition 1b:	*Idea discovery is positively related to the numbers of new venture opportunities that entrepreneurs consider successes.*

Creative Thinking Stage

Creative thinking is a second stage in the *opportunity recognition process*. Because entrepreneurs discover only general ideas for new ventures, they must be very creative in advancing these ideas to new venture opportunities. Therefore, entrepreneurs' initial idea discoveries become the subject for extensive, rigorous thought. While the *idea discovery* stage may occur in an instant, the *creative thinking* stage may involve months or even years of serious contemplation (Roberts, 1992).

Entrepreneurs, however, do not necessarily consider this a tedious process, but rather enjoy it as a creative challenge. In fact, some entrepreneurs report that *creative thinking* gives them a natural high (Rockey, 1986). Gartner (1989) describes entrepreneurs as engaging in unique thought processes that holistically integrate the contradictory data, signals, etc., referred to by Timmons (1990).

Churchill and Muzyka (1994) also found that recognizing opportunities involves creative thinking. Romano, Tanewski, and Smyrnios (1999) identify the accumulation of creative knowledge as an important ingredient in the *opportunity recognition process*. Based on the support provided by these findings, a second stage of the *opportunity recognition process* may contribute to the numbers of new venture opportunities that entrepreneurs' *pursue* and that they *consider successes*. Therefore, two additional research propositions related to the importance that entrepreneurs attach to the *creative thinking* stage of the *opportunity recognition process* are considered:

Proposition 2a:	*Creative thinking is positively related to the numbers of new venture opportunities that entrepreneurs pursue.*

Proposition 2b:	*Creative thinking is positively related to the numbers of new venture opportunities that entrepreneurs consider successes.*

Concept Development Stage

The *creative thinking* stage advances new venture ideas into new venture opportunities, which are still abstract. Then the *concept development* stage makes these abstract opportunities more concrete. In this stage, entrepreneurs advance their new venture visions to the level of new venture concepts by overcoming major obstacles (Long & McMullan, 1984). Entrepreneurs conceive and resolve a series of questions about the market and the technical viability of the new venture opportunity during this stage (Stevenson & Gumpert, 1985). Cadotte and Woodruff (1994) found that successful entrepreneurs accomplish three tasks during this stage: First, they develop precise definitions of the products or services that they will offer. Then they develop accurate profiles of the customers, channels, and competition. Finally, they prepare realistic cost and sales forecasts. Romano et al. (1999) found support for such market knowledge as a key ingredient in the development of new venture opportunities. According to Herron and Sapienza (1992), entrepreneurs think through the activities necessary to actually realize their new venture opportunities.

Stevenson and Gumpert (1985) found that entrepreneurs conceptualize their new venture opportunities by elaborating on the relevant information that they have at the time. As the entrepreneurs' level of resource commitment increases, they want more facts with which to continue *concept development*. The *concept development* stage leads to better defined new venture opportunities, which entrepreneurs can evaluate in the course of deciding what new venture opportunities to pursue (Long & McMullan, 1984). *Concept development* is a formal stage, which help entrepreneurs advance their *opportunity recognition process*. This suggests additional research propositions regarding the importance of *concept development* to entrepreneurs' *opportunity recognition process*:

Proposition 3a:	*Concept development is positively related to the numbers of new venture opportunities that entrepreneurs pursue.*
Proposition 3b:	*Concept development is positively related to the numbers of new venture opportunities that entrepreneurs consider successes.*

Informal Evaluation Stage

One main stream of entrepreneurship literature (Christensen, Madsen &Peterson, 1994; Timmons, 1990; Cadotte & Woodruff, 1994) indicates that new venture concepts should be subjected to a formal feasibility analysis before entrepreneurs make decisions to pursue them. However, entrepreneurs with limited resources for obtaining objective information from independent sources rely on their own informal evaluations more than on formal research (Carland, Hoy & Carland, 1988). Whether entrepreneurs are simply not familiar with these analytic tools, or they

instinctively distrust their value, or both, they often do not conduct formal research (Hills, 1995). Cooper and Dunkelberg (1981) indicate that entrepreneurs may only seek information that is necessary for their own decision-making. Manion et al. (2000a) find that entrepreneurs employ their "gut feel" rather than comprehensive market analysis. Entrepreneurs are concerned that too much analysis will result in their not pursuing many opportunities that they believe are worthwhile. They also believe that extensive formal research may delay their entry into attractive markets or their timely pursuit of a short-lived market opportunity. Entrepreneurs' who are generally confident in their abilities believe that they can adjust their product or service to customer demands after they enter the market.

In conclusion, it is possible to speculate that entrepreneurs use either formal evaluation techniques or *informal evaluation*, which they refer to as gut feel, in deciding which opportunities to actually pursue. While the Long and McMullan (1984) model includes the use of a formal evaluation as the normative basis for entrepreneurs' decisions to pursue, or not pursue, opportunities, more recent studies, such as Hills (1995), indicate that entrepreneurs' decision-making is based less to the use of rigorous analyses than on the use of personal intuition. These differing perspectives of the *informal evaluation* stage of the *opportunity recognition process* lead to two more propositions:

Proposition 4a:	*Informal evaluation is positively related to the numbers of new venture opportunities that entrepreneurs pursue.*
Proposition 4b:	*Informal evaluation is positively related to the numbers of new venture opportunities that entrepreneurs consider successes.*

Level of Technological Complexity

The greater dependence of the economy on technology produces an abundance of opportunities for entrepreneurs. Opportunity-rich sectors of the economy often involve a higher level of *technological complexity*. Schumpeter (1934) describes entrepreneurship as an act of innovation, that is, commercializing new technologies. Schumpeter refers to Henry Ford as a model entrepreneur of his day because he commercialized a process, the assembly of affordably priced personal transportation, relying on a higher level of *technological complexity*. Schumpeter might identify model entrepreneurs today as those who are similarly innovative, that is, those who commercialize processes or products that rely on higher levels of *technological complexity*.

Drucker (1985) proposes that technology is the specific tool of entrepreneurs and that the level of *technological complexity* affects the whole *opportunity recognition process* of entrepreneurs. According to Drucker, entrepreneurs find more opportunities to *pursue* in environments with higher levels of *technological complexity*. Both Drucker and Roberts distinguish between the types of new venture opportunities that vary in level of technological complexity. This study defines the level of *technological complexity* as the level of product and process complexity of new ventures and the innovativeness of entrepreneurs and new ventures. Previous research (Manion, Hills & Lumpkin, 2000b) relates the level of *technological complexity* involved in new

ventures to the numbers of new venture opportunities that entrepreneurs *pursue* and *consider successes*.

However, according to Roberts (1992), higher levels of *technological complexity* are also associated with greater risks of failure. Though there are more opportunities available in environments with higher levels of *technological complexity*, entrepreneurs may face greater challenges in recognizing opportunities that they can ultimately *consider successes*. The existing literature does not address the relationships among the level of *technological complexity* and the individual stages of the *opportunity recognition process* as they affect the numbers of new venture opportunities that entrepreneurs *pursue* and *consider successes*. However, Roberts' findings indicate that certain stages of the *opportunity recognition process*, such as *informal evaluation*, may be more important in recognizing opportunities that involve higher levels of *technological complexity* and that entrepreneurs may ultimately *consider successes*. This implies that the level of *technological complexity* involved in new ventures may affect the relationship between the stages of the *opportunity recognition process* and the numbers of opportunities that entrepreneurs *pursue* and *consider successes*. Therefore, the final research propositions of this study are:

Proposition 5a:	*The level of technological complexity affects the relationship between the stages of the opportunity recognition process and the numbers of new venture opportunities that entrepreneurs pursue.*
Proposition 5b:	*The level of technological complexity affects the relationship between the stages of the opportunity recognition process and the numbers of new venture opportunities that entrepreneurs consider successes.*

RESEARCH METHODS

Successful entrepreneurs located in a major Midwestern metropolitan area were invited to participate in five focus groups to discuss the *opportunity recognition process*. Focus group participants had previously selected for an entrepreneurial hall of fame based on objective criteria. The design of the survey instrument includes many of the points expressed by the entrepreneurs in these focus groups (Hills, 1995). The questionnaire was also pre-tested with a small sample of local entrepreneurs and business owners.

A number of the survey items were selected to replicate prior opportunity recognition studies (Christensen et al., 1994; Teach, Tarpley & Schwartz, 1989). Survey respondents were asked to record, on a 5-point Likert scale, their degree of agreement or disagreement with twenty-three statements about the importance of activities in the recognition of new venture opportunities. All responses were reverse coded from “strongly agree” (5) to “strongly disagree” (1). The survey instrument included an additional thirty-four questions regarding the entrepreneurs and their firms.

Further, respondents were asked to report the numbers (0, 1, 2, 3, 4, 5-10, or >10) of new venture opportunities that they *pursued* (that is, in which they had invested time and money) in the past five years. The categorical responses of “5-10" and “>10" reflect the pre-test finding that entrepreneurs who recognize numerous opportunities could recall that they had more than one, or

more than two, new venture opportunities per year over a five year period, but generally could not be more precise. In order to minimize potential over-estimation or demand effect, responses of "5-10" are coded as 6, and responses of ">10" are coded as 11 new venture opportunities.

A random selection of 1,500 metropolitan area firms with annual revenues of $5 to $100 million was obtained from Dun and Bradstreet. Further screening resulted in a potential sample of 1,291 individual venture owners. The survey mailing and subsequent follow-up efforts produced 189 useable responses, which is a 14.6% response rate. Business owners who had not founded a substantial portion of their venture or who indicated they were franchisees were screened from subsequent analyses. No significant bias in firm size was found between the respondents and non-respondents to the survey.

RESULTS

Four tables report the results of this research. Table 1 provides descriptive statistics for numbers of new venture opportunities, level of technological complexity, and size of entrepreneurs' firms. Table 2 includes both the descriptive statistics for 17 activity statements in the *opportunity recognition process* and a factor analysis of those statements. Table 3 shows correlations of the numbers of new venture opportunities that entrepreneurs *pursue* and *consider successes*, the level of *technological complexity*, and the four stages of the *opportunity recognition process*. Table 4 presents the results of regression analyses of the numbers of new venture opportunities that entrepreneurs pursue and consider successes on the four stages of the *opportunity recognition process* and the level of *technological complexity*.

Descriptive Statistics: Numbers of New Venture Opportunities, Level of Technological Complexity, and Firm Size

The survey includes questions that relate to the number of new venture opportunities that entrepreneurs pursued during the preceding five-year period and the number of opportunities that entrepreneurs *considered successes* during the same period. These measures are the two dependent variables reported in Table 1. Entrepreneurs reported that, in the previous five years, they *pursued* 4.51 (s.d. 3.06) new venture opportunities. They reported that, in the previous five years, and *considered* 2.71 (s.d. = 2.16) of their new venture opportunities to be *successes*. Thus, entrepreneurs *pursue* opportunities at a rate of almost one per year and *consider* 60% to be *successes*.

Table 1 presents the descriptive statistics for the level of *technological complexity* and firm size. Three questions assess the level of *technological complexity* of new ventures' leading product/service (x = 3.75; s.d.=1.52; scale: low = 1, high = 6), new ventures' production/operations (x = 4.26; s.d. = 1.67; scale: low = 1, high = 6), and innovativeness of entrepreneurs and their firms (x = 5.84; s.d. = 1.62; reverse scored: not very innovative = 1, extremely innovative = 8). The values of each of the three technology variables are combined to form a single scale for level of *technological complexity* (scale: low = 3, high = 20).

Table 1: Descriptive Statistics		
Number of New Venture Opportunities (N = 189)	Mean	Standard Deviation
How many new, major business opportunities have you pursued (invested time and money in) in the last 5 years?	4.51	3.06
How many of these business opportunities can be said to be successes?	2.71	2.16
Level of Technological Complexity (N = 189)	Mean	Standard Deviation
What is the technological complexity of your leading product/service? (Scale: Low = 1; High = 6)	3.75	1.52
What is the technological complexity of your production/operations? (Scale: Low = 1; High = 6)	4.26	1.67
How would you characterize yourself and your firm? (Scale recoded: Not very innovative = 1; Extremely innovative = 8)	5.84	1.62
Size of Entrepreneurs' Firms (N = 189)	Mean	Standard Deviation
What was the dollar volume of your business in the last fiscal year (in millions of dollars)?	25.2	28.6
What was the dollar volume of your business three fiscal years ago (in millions of dollars)?	15.6	18.3
What was the number of full time employees (or full time equivalents, if you have part time employees) in your organization at the end of the year?	139.6	205.9
What was the number of full time employees (or full time equivalents, if you have part time employees) in your organization at the end of the year three years ago?	90.6	128.8

The size of entrepreneurs' firms is measured by responses to four questions related to annual sales and number of employees, both one and three years before. Other findings reported in Table 1 indicate that respondents' firms averaged approximately $25 million in annual volume, employed approximately 140 full time equivalents, and grew in excess of 50% during the previous three years.

Factor Analysis and Correlation of Variables

In general, the factor analysis of entrepreneurs' opportunity recognition statements finds four interpretable dimensions of the processes involved in opportunity recognition. The four factors closely resemble those described in the literature on the *opportunity recognition process*, which forms the basis for the first eight hypotheses.

As reported in an earlier study (Manion et al., 2000a), the survey includes activity statements related to the *opportunity recognition process*. Respondents indicated their level of agreement with the activity statements on a scale of "1" for strongly disagree to "5" for strongly agree. Table 2 shows descriptive statistics of these responses.

Entrepreneurs' responses to the activity statements are subjected to a factor analysis to identify salient stages of the *opportunity recognition process*. The four factors, which emerge from this analysis: *idea discovery, creative thinking, concept development*, and *informal evaluation*, are consistent with the four stages of the opportunity recognition process discussed in the literature review. Item loadings for all items in each of the four factors are in excess of .500, with two cross-loadings in excess of .300 as shown, and with average reliability levels of $\alpha = .70$. The four

factors explain 59.51% of the variance among the activity statements. Table 2 shows the factor analysis.

Table 2: Opportunity Recognition Process Descriptive Statistics and Factor Analysis

Opportunity Recognition Process Activity Statements	Mean (S.D.)	Idea Discovery	Creative Thinking	Concept Development	Informal Evaluation
1. The business opportunities I have identified over the years have been largely unrelated to each other	2.42 (1.24)	.634			
2. Our venture idea came from an accidental process that just happened to uncover the concept	1.97 (1.26)	.626			
3. The idea behind this business just seemed to suddenly appear	2.37 (1.34)	.560			
4. I have found that the consideration of one opportunity rarely leads to other opportunities	1.82 (1.01)	.548	-.307		
5. Facing challenges and problems usually nets out negative for my business	1.53 (0.90)	.540			
6. I set aside a few minutes each day or week to be creative	3.28 (1.25)		.712		
7. I am not a very creative person	0.94 (1.13)		-.682		
8. I enjoy just thinking about and/or looking for new business opportunities	3.99 (1.09)		.624		.308
9. Being creative is very important to identifying business opportunities	4.39 (0.87)		.623		
10. "Seeing" potential new business opportunities does not come very naturally for me	1.14 (1.06)		-.582		
11. Our first product represented a major improvement over all other available products	3.23 (1.34)			.767	
12. When I started my business (es), I offered something different to the market at the time	3.67 (1.26)			.716	
13. Upon entering the market with a new venture, I made major changes based on customer feedback	3.63 (1.17)			.641	
14. In depth market analysis is often more for impressing financial sources than for actual decision-making	2.94 (1.38)				.836
15. It is often better to enter a market and, if necessary, make changes, than to take the time and money to first do formal market research	2.70 (1.26)				.768
16. In-depth formal customer surveys are usually more costly than justified	2.98 (1.20)				.752
17. One's own intuition (or "gut feel") is often the most important part of judging market potential for a new product	3.49 (1.27)				.533
Percentage of variance explained Cumulative % of variance explained Eigen values		11.25 11.25 1.58	18.15 29.40 2.54	13.41 42.81 2.01	16.70 59.51 2.34
Factor reliability (average α = .70) (N=189)		.682	.676	.717	.726

The first of the four factors includes five statements related to the *idea discovery* stage of the *opportunity recognition process*. The statements describe the sudden, or accidental, appearances of unrelated opportunities, the *opportunity recognition process* stage referred to as the "Eureka!" phenomenon in the literature review. The second of the four factors includes five statements related to the *creative thinking* stage of the *opportunity recognition process*. The *creative thinking* statements describe entrepreneurs' ability to be creative, to enjoy creative thinking and to set time aside for it, and to form visions of new venture opportunities.

The third of the four factors includes three statements related to the *concept development* stage of the *opportunity recognition process*. The *concept development* statements describe entrepreneurs' ability to differentiate their offerings from other available products on the market, to respond to customer feedback, and to make product improvements. The fourth of the four factors includes four statements related to the *informal evaluation* stage of the *opportunity recognition process*. The *informal evaluation* statements describe entrepreneurs' reliance on their own intuitive judgment, or "gut feel", to evaluate their opportunities, rather than in-depth analytic processes, such as, market analyses, customer surveys, and formal market research.

Correlations of the four stages of the *opportunity recognition process* and the numbers of new venture opportunities *pursued* and *considered successes* are provided in Table 3. No one of the four factors representing the four stages of the *opportunity recognition process* is correlated with another, therefore, each is assumed independent.

Table 3: Correlation of Variables

1. New Venture Opportunities that Entrepreneurs Pursue	--		
2. New Venture Opportunities that Entrepreneurs Consider Successes	.673**	--	
3. Technological Complexity	.262**	.149*	--
4. Idea Discovery	-.226**	-.240**	-.178*
5. Creative Thinking	.175*	.178*	.197**
6. Concept Development	.068	-.002	.171*
7. Informal Evaluation	.141	.204**	-.082

Opportunity Recognition Process Stages, items 4 through 7, correlate at r = .000, p < .01
N = 189; ** p < .01; * p < .05

Though Long and MacMullan (1984) suggest a positive relationship between *opportunity recognition* and *idea discovery*, the findings indicate a significant negative correlation with new venture opportunities pursued (r = -.226, p < .01), opportunities considered successes (r = -.240, p < .01), and with technological complexity (r = -178, p < .05). Therefore, the *idea discovery* stage of the *opportunity recognition process*, when defined as the sudden, or accidental, appearances of unrelated opportunities, requires careful interpretation in further analyses. This *creative thinking factor* is found to have a positive and significant relationship with both new venture opportunities *pursued* (r = .175, p < .05), those *considered successes* (r = .178, p < .05), and *technological complexity* (r = .197, p < .01).

This *concept development* factor does not have a significant relationship with either new venture opportunities *pursued* ($r = .068$, $p > .05$) or new venture opportunities *considered successes* ($r = -.002$, $p > .05$). However, *concept development* is positively correlated to *technological complexity* ($r = .171$, $p < .05$). The informal evaluation stage does not have a significant relationship with *technological complexity* ($r = -.082$, $p > .05$), nor with new venture opportunities *pursued* ($r = .141$, $p > .05$), but it does have a significant correlation with new venture opportunities *considered successes* ($r = .204$, $p < .01$).

TESTS OF RESEARCH PROPOSITIONS

All ten research propositions are tested using two regression models. The study's approach to using regression analyses to test the research propositions is explained here and the specific results are reported in two subsequent sections on the number of new venture opportunities that entrepreneurs *pursue* and the number of new venture opportunities that they *consider successes*.

The purpose of the first regression analysis, referred to as Model 1, is to test the first eight research propositions. The next two sections report the findings of Model 1, which tests the relationships among the numbers of new venture opportunities that entrepreneurs *pursue* and *consider successes*, the level of *technological complexity*, and each of the four stages of the *opportunity recognition process*: *idea discovery, creative thinking, concept development*, and *informal evaluation.*

The purpose of the second regression analysis, referred to as Model 2, is to test the last two research propositions. The next two sections also report the findings of Model 2. Model 2 tests the relationships among the numbers of new venture opportunities that entrepreneurs *pursue* and *consider successes*, the level of *technological complexity*, the four stages of the *opportunity recognition process,* and the interactions among the level of *technological complexity* and each of the four stages of the *opportunity recognition process.*

The results of Model 2 are not significant in explaining the variance in the number of new venture opportunities that entrepreneurs *pursue*, beyond the results of Model 1. However, the results of Model 2 do explain significantly more of the variance in the number of new venture opportunities that entrepreneurs *consider successes*. Model 2 shows the relative importance of each of the four stages of the *opportunity recognition process*, *technological complexity*, and the interactions of each of the four stages of the *opportunity recognition process* with *technological complexity.*

The results of Model 1 and Model 2 are reported in Table 4. The following two sections discuss the results of these models as they relate to the research propositions regarding the number of new venture opportunities that entrepreneurs *pursue* and the number of new venture opportunities that they *consider successes*.

Number of New Venture Opportunities that Entrepreneurs Pursue

Model 1 is significant (adjusted $R^2 = .174$, $p < .001$) for the number of new venture opportunities that entrepreneurs *pursue*. Therefore, Model 1 supports a relationship among the number of new venture opportunities that entrepreneurs *pursue*, the level of *technological*

complexity, and the stages of the *opportunity recognition process*, while controlling for firm size. The data indicate that two of the four stages of the *opportunity recognition process* and the level of *technological complexity* are related to new venture opportunities pursued. *Idea discovery* and *informal evaluation* have significant *Beta* weights. The standardized *Beta* weight for the first stage of the *opportunity recognition process, idea discovery* ($\beta = -.196$, $p < .01$) is significant, but it is negative. The direction of this *Beta* weight is inconsistent with the research *Proposition 1a*. Therefore, *Proposition 1a* is not supported by these findings. The standardized Beta-weight for the second stage of the *opportunity recognition process*, *creative thinking,* ($\beta = .131$, $p > .05$) is not significant. Therefore, research *Proposition 2a* is not supported by these findings.

Table 4: Regression Analysis

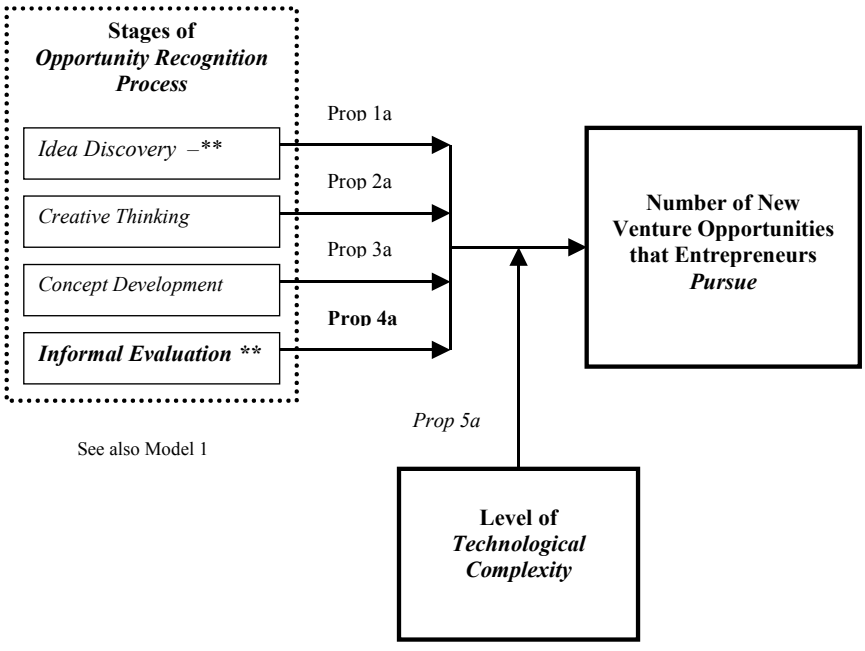
Model 1	Number of Opportunities That Entrepreneurs Pursue[1] Adjusted $R^2 = .174$; $p < .001$	Number of Opportunities They Consider Successes[2] Adjusted $R^2 = .154$; $p < .001$
Firm Size	.224**	.212**
Idea Discovery	-.196**	-.227**
Creative Thinking	.131	.154*
Concept Development	.037	.016
Informal Evaluation	.191**	.240**
Technological Complexity	.195**	.089
Model 2	Change in $R^2 = .178$; $p > .05$	Change in $R^2 = .195$; $p < .01$
Firm Size		.226**
Idea Discovery		.113
Creative Thinking		.538*
Concept Development		-.523**
Informal Evaluation		.366
Technological Complexity		.059
Idea Discovery X Technological Complexity		-.397
Creative Thinking X Technological Complexity		-.401*
Concept Development X Technological Complexity		.536**
Informal Evaluation X Technological Complexity		-.080

N = 189; ** $p < .01$; * $p < .05$
[1] See also Figure 1: [2] See also Figure 2

The *Beta* weight of the third stage of the *opportunity recognition process, concept development* ($\beta = .037$, $p > .05$) is not significant as it relates to opportunities *pursued*. Therefore, research *Proposition 3a* is not supported by these findings. The *Beta* weight of the fourth stage of the *opportunity recognition process, informal evaluation* ($\beta = .191$, $p < .01$) is significant and positive. Therefore, research *Proposition 4a* is supported by these findings. The *Beta* weight of the

level of *technological complexity* ($\beta = .195$, $p < .01$) is significant in relation to the number of new venture opportunities that entrepreneurs *pursue*. However, this finding of a direct relationship between the level of *technological complexity* and the number of new venture opportunities that entrepreneurs *pursue* does not satisfy research *Proposition 5a*. In summary, Model 1 supports a relationship among the number of new venture opportunities that entrepreneurs *pursue*, the level of *technological complexity*, and the stages of the *opportunity recognition process*, while controlling for firm size. However, the findings of Model 1 support that *idea discovery* has a significant negative relationship, that *informal evaluation* has a significant positive relationship, and that *technological complexity* has a significant positive relationship to the number of new venture opportunities that entrepreneurs *pursue*. Therefore, Model 1, as it relates to the numbers of new venture opportunities that entrepreneurs *pursue*, supports only *Proposition 4a.*

Figure 1. Effects of the Level of *Technological Complexity* on the Relationships Among the Stages of the *Opportunity Recognition Process* and the Number of New Venture Opportunities that Entrepreneurs *Pursue*



Further regression analysis in Model 2 tests the interactions of *technological complexity* with the four stages of the *opportunity recognition process*. When the interactions of *technological complexity* and the four *opportunity recognition process* stages are entered in Model 2, the R^2 is not

significantly greater that the R^2 for Model 1 (change in adjusted R^2 = .004, p >.05). Therefore, the results of Model 1 and Model 2 support only a direct relationship between *technological complexity* and new venture opportunities *pursued* (Figure 1). Research *Proposition 5a* that the level of *technological complexity* affects the relationship between the stages of the *opportunity recognition process* and the numbers of new venture opportunities that entrepreneurs *pursue* is not supported.

Number of New Venture Opportunities that Entrepreneurs Consider Successes

Model 1 also supports a relationship among the four stages of the *opportunity recognition process,* the level of *technological complexity*, and the number of new venture opportunities that entrepreneurs *consider successes* (adjusted R^2 = .154, p < .001). Further, the data support significant absolute relationships among three of the four stages of the *opportunity recognition process*: *idea discovery, creative thinking*, and *informal evaluation* and the number of new venture opportunities that entrepreneurs *consider successes*. Each of these three stages has a significant *Beta* weight as Model 1 relates to the number of new venture opportunities that entrepreneurs *consider successes*. The *Beta* weight for *idea discovery,* the first stage of the *opportunity recognition process*, is significant (β = -.227, p < .01), but it is negative. The direction of this *Beta* weight is inconsistent with research *Proposition 1b*. Therefore, this finding does not support research *Proposition 1b*. The standardized Beta-weight for *creative thinking*, the second stage of the *opportunity recognition process*, is significant (β = .154, p > .05). Therefore, this finding supports research *Proposition 2b*.

Furthermore, as Model 1 relates to new venture opportunities that entrepreneurs *consider successes*, the *Beta* weight of *concept development*, the third stage of the *opportunity recognition process,* is not significant (β = -.016, p > .05). Therefore, this finding does not support research *Proposition 3b*. The *Beta* weight of *informal evaluation*, the fourth stage of the *opportunity recognition process*, is significant and positive (β = .240, p < .01). Therefore, this finding supports research *Proposition 4b*.

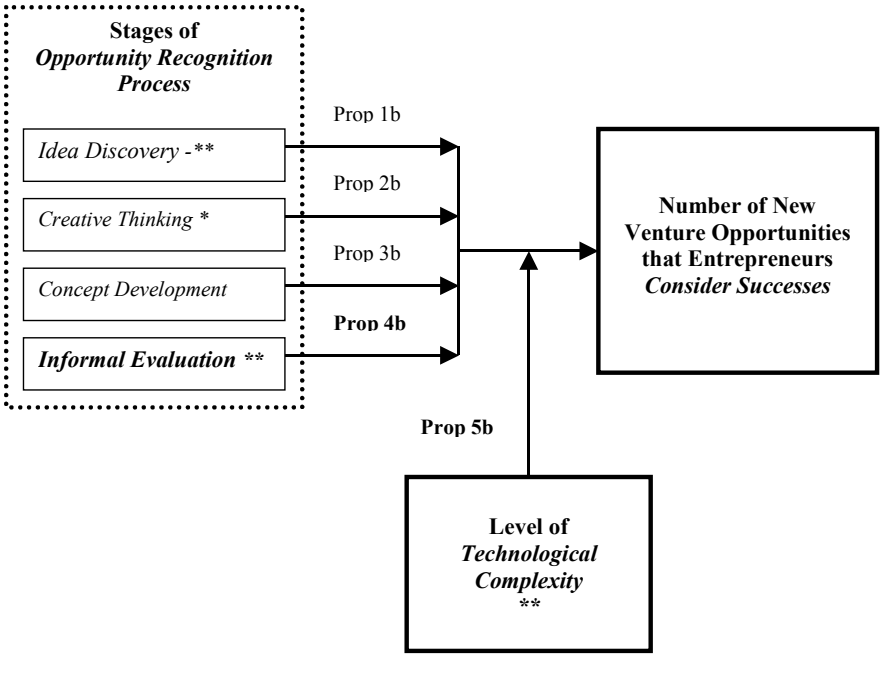
In summary, these findings from Model 1 indicate that the relationships among new venture opportunities that entrepreneurs *consider successes* and three of the four stages of the *opportunity recognition process* are significant: *idea discovery* is significant but negative, *creative thinking* is significant and positive, *concept development* is not significant, and *informal evaluation* is significant and positive. Finally, the *Beta* weight for the level of *technological complexity* (β = .089, p > .05) is not significant for new venture opportunities that entrepreneurs *consider successes*. Therefore, this finding does not indicate a significant direct relationship between the number of new venture opportunities that entrepreneurs *consider successes* and the level of *technological complexity.*

Model 2 tests research *Proposition 5b* regarding relationships among the number of new venture opportunity that entrepreneurs *consider successes*, the interactions of *technological complexity* with each of the stages of the *opportunity recognition process*, and the factors considered in Model 1. The R^2 of Model 2 is significantly greater than the R^2 for Model 1 (change in adjusted R^2 = .041, p < .001) due to the entry of the interactions of *technological complexity* and each stage of the *opportunity recognition process*. Therefore, this finding supports research *Proposition 5b*, that the level of *technological complexity* affects the relationship between the stages of the

opportunity recognition process and the number of new venture opportunities that entrepreneurs *consider successes.*

Further examination of Model 2, as it relates to the number of new venture opportunities that entrepreneurs *consider successes*, finds a significant negative interaction (β = -.401, $p < .05$) between *technological complexity* and *creative thinking*, the second stage of the *opportunity recognition process*. This finding indicates that the level of *technological complexity* has a significant negative effect on the relationship between *creative thinking* and the number of new venture opportunities that entrepreneurs *consider successes*.

Figure 2. The Effects of the Level of *Technological Complexity* on The Relationships among the Stages of the *Opportunity Recognition Process* and The Number of New Venture Opportunities that Entrepreneurs *Consider Success* (p < .01; * p < .05) (See also Model 2)**



** p < .01; * p < .05

See also Model 2

However, a significant positive interaction ($\beta = .536$, $p < .01$) occurs between the level of *technological complexity* and *concept development*, the third stage of the *opportunity recognition process*. This finding indicates that the *level of technological complexity* has a positive effect on the relationship between *concept development* and new venture opportunities *considered successes*. The results of Model 2 as it relates to new venture opportunities that entrepreneurs *consider successes* are depicted in Figure 2. The implications of these findings of interactions with *technological complexity* and recognition process stages are discussed in the next section.

DISCUSSION

The stages of the *opportunity recognition process* include *idea discovery, creative thinking, concept development*, and *informal evaluation*. This research relates the stages of the *opportunity recognition process*, the level of *technological complexity*, and the numbers of the new venture opportunities that entrepreneurs *pursue* and *consider successes*. The study finds that the level of *technological complexity* affects the relationships among the stages of the *opportunity recognition process* and the numbers of new venture opportunities that entrepreneurs *consider successes*.

Based on the findings of this study, a conclusion is drawn that the number of new venture opportunities *pursued* is directly related to the stages of the *opportunity recognition process* and to the level of *technological complexity*. However, *technological complexity* does not significantly affect the relationship between the stages of the *opportunity recognition process* and the numbers of new venture opportunities *pursued*. This important finding implies that the level of *technological complexity* increases the number of new venture opportunities that entrepreneurs *pursue*. However, the *opportunity recognition process* is no more effective in increasing the number of new venture opportunities that entrepreneurs *pursue* when the new venture opportunity involves more *technological complexity* than when it does not.

A further conclusion is drawn that the numbers of new venture opportunities that entrepreneurs *consider successes* are directly related to the stages of the *opportunity recognition process*. However, *technological complexity* is not directly related to the numbers of new venture opportunities that entrepreneurs *considered successes*. This and the previous finding imply that entrepreneurs have more opportunities to *pursue* that are more technologically complex. However, entrepreneurs do not have more opportunities that they *consider successes* because the opportunities are more technologically complex.

Further analysis helps to explain this phenomenon. Entrepreneurs, whose new venture opportunities involve a higher level of *technological complexity,* have more opportunities that they *consider successes,* if they rely more on the *concept development* stage of the *opportunity recognition process* and less on the *creative thinking* stage. That is, entrepreneurs benefit from placing relatively more emphasis on differentiating their technologically innovative products from available market offerings. On the other hand, while entrepreneurs do work at being creative, it is relatively less important to the success of new venture opportunities that are more technologically complex. Therefore, *technological complexity* does have a significant effect on the relationships among the stages of the *opportunity recognition process* and the number of new venture opportunities that entrepreneurs *consider successes.*

LIMITATIONS AND FURTHER RESEARCH

The limitations to this study include several that are common to entrepreneurial research. First, survey information is necessarily post hoc and dependent on the recollection and disposition of the respondents. However, entrepreneurs appear to be ready and able to describe their opportunity recognition experiences with accuracy. Second, some geographic bias toward a traditional industrial economy may restrict the generalization of the results to more technology-oriented industries. However, the sample of respondents includes both industrial and non-industrial firms, and there is no reason to believe that a national sample would produce different conclusions. Third, the data collected reflects economic conditions, such as, employee layoffs and cost reductions, which might be different during other economic cycles.

Other limitations, specific to the study, relate to the data collection and analysis techniques. First, the use of two highly correlated (r = .673, $p < .001$) dependent variables, new venture opportunities that entrepreneurs *pursue* and new venture opportunities that they *consider successes*, may not be optimal. However, each dependent variable provides different insights into how two different outcomes of the *opportunity recognition process* may vary. Second, the survey statements do not represent a fully tested and reliable scale for opportunity recognition. However, similar scale items are used in other studies with comparable results. Further research should refine this scale and apply it to other samples of entrepreneurs to improve its reliability.

This paper presents an initial study for an empirical research program. The findings of this study can be tested by comparative studies of diverse groups of entrepreneurs. Entrepreneurs in different industries, growth stages, or geographic regions can be compared for their use of the various process stages. Sandberg and Hofer (1987) suggest that strategy can be a meaningful differentiation for understanding entrepreneurs' activities. Clusters of entrepreneurs that differ in antecedents or individual characteristics, such as, age, education, and experience can be compared. Research propositions comparing highly successful entrepreneurs with less successful entrepreneurs can be based on these research findings. Additional measures of opportunity recognition outcomes can be developed and tested to provide a more robust dependent variable for further study. Future research may focus on the reliability of the stages and a global model for the *opportunity recognition process.*

REFERENCES

Bhave, M. P. (1994). A process model of entrepreneurial venture creation, *Journal of Business Venturing, 9*(3), 223-242.

Bygrave, W. D. & Hofer, C. W. (1991). Theorizing about entrepreneurship. *Entrepreneurship: Theory and Practice, 15*, 17-25.

Cadotte, E. R. & Woodruff, R. B. (1994). Analyzing market opportunities for new ventures. In *Marketing and Entrepreneurship: Research at the Marketing Entrepreneurship Interface*, G. E. Hills, (Ed.), Chicago: University of Illinois.

Carland, J. W., Hoy, F. & Carland, J. C. (1988). 'Who is an entrepreneur?' is a question worth asking, *American Journal of Small Business, 13*, 33-39.

Chandler, G. N. & Hanks, S. H. (1994). Founder competence, the environment, and venture performance. *Entrepreneurship: Theory and Practice, 18*(3), 77-90.

Christensen, P. S. & Peterson, R. (1990). Opportunity identification: Mapping the sources of new venture ideas. In *Frontiers of Entrepreneurial Research.* Wellesley, MA: Babson College.

Christensen, P. S., Madsen, O. O. & Peterson, R. (1994). Conceptualizing opportunity identification. In *Marketing and Entrepreneurship: Research at the Marketing Entrepreneurship Interface,* G. E. Hills, (Ed.), Chicago: University of Illinois.

Churchill, N. C. & Muzyka, D. F. (1994). Defining and conceptualizing entrepreneurship: A process approach. In *Marketing and Entrepreneurship: Research at the Marketing Entrepreneurship Interface*, G. E. Hills, (Ed.), Chicago: University of Illinois.

Cooper, A. C. & Dunkelberg, W. C. (1981). A new look at business entry experiences of 1805 entrepreneurs. In *Frontiers of Entrepreneurship Research.* Wellesley, MA: Babson College.

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

Gaglio, C. M. & Taub, R. P. (1992). Entrepreneurs and opportunity recognition. In *Frontiers of Entrepreneurship Research.* Wellesley, MA: Babson College.

Gartner, W. B. (1989). Some suggestions for research on entrepreneurial traits and characteristics. *Entrepreneurship: Theory and Practice, 14*(1), 27-31.

Herron, L. & Sapienza, H. J. (1992). The entrepreneur and the initiation of new venture launch activities. *Entrepreneurship: Theory and Practice, 17*(1), 49-55.

Hills, G. E. (1995). Opportunity recognition by successful entrepreneurs: A pilot study. In *Frontiers of Entrepreneurship Research*. Wellesley, MA: Babson College.

Kaisch, S. & Gilad, B. (1991). Characteristics of opportunity search for entrepreneurs versus executives: Sources, interests, and general alertness. *Journal of Business Venturing. 6*(1), 45-61.

Kirzner, I. M. (1979). *Perception, Opportunity and Profit: Studies in the Theory of Entrepreneurship.* Chicago, IL: University of Chicago Press.

Koller, R. H. (1988). On the source of entrepreneurial ideas. In *Frontiers of Entrepreneurship Research*. Wellesley, MA: Babson College.

Long, W. & McMullan, W. E. (1984). Mapping the new venture identification process. In *Frontiers of Entrepreneurship Research.* Wellesley, MA: Babson College.

Manion, M. T., Hills, G. E., Lumpkin, G. T. & Shrader, R. C. (2000a). The recognition of new business opportunities: The search for a model. In *Marketing Theory and Applications*. Workman, J. P. & Perault, W. D., (Eds.), Chicago, IL: American Marketing Association, 11, 317-323.

Manion, M. T., Hills, G. E. & Lumpkin, G. T. (2000b). The effects of technological innovation on the recognition of new venture opportunities. In *Frontiers of Entrepreneurship Research* 2000, William D. Bygrave, (Ed.), Wellesley, MA: Babson College, 20, 171-177.

Roberts, E. B. (1992). How to succeed in business. *Tech Review,* February/March, 53-59.

Rockey, E. (1986). Envisioning new business: How entrepreneurs perceive the benefits of visualizing. In *Frontiers of Entrepreneurship Research.* Wellesley, MA: Babson College.

Romano, C. A., Tanewski, G. A. & Smyrnios, K. X. (1999). Distinguishing characteristics of opportunity recognition. In *Frontiers of Entrepreneurship Research*. Wellesley, MA: Babson College.

Ronstadt, J. B. (1988). The corridor principle. *Journal of Business Venturing, 3*, 31-40.

Sandberg, W. R. & Hofer, C. W. (1987). Improving new venture performance: The role of strategy, industry structure, and the entrepreneur. *Journal of Business Venturing, 2*, 5-28.

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

Stearns, T. & Hills, G. E. (1996). Entrepreneurship and new firm development: A definitional introduction. *Journal of Business Research, 36*, 1-4.

Stevenson, H. H. & Gumpert, D. E. (1985). The heart of entrepreneurship. *Harvard Business Review, 63*(2), 85-94.

Teach, Tarpley & Schwartz. (1989). The recognition and exploitation of opportunity in the software industry: A study of surviving firms. In Brockhaus, et al. (Eds.), *Frontiers of Entrepreneurship Research.* Wellesley, MA: Babson College, 567-590

Timmons, J. A. (1990). *New Venture Creation.* Homewood, IL: Irwin.