



# Now you see them, now you don't: gender differences in entrepreneurship

Gender  
differences in  
entrepreneurship

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## Abstract

**Purpose** – While the numbers of, and research on, women entrepreneurs have accelerated radically in recent years, the rates of women entrepreneurs remain significantly lower than men's. Research has shown that subjective perceptual variables have a crucial influence on the entrepreneurial propensity of women and account for much of the gender differences in entrepreneurial activity. The paper aims to describe three studies that addressed gender differences in entrepreneurial perceptions, testing predictions derived from Schneider's Attraction Selection Attrition (ASA) model.

**Design/methodology/approach** – Each study focused on a different subject population with different entrepreneurial activity. The first was a national telephone survey that involved 514 Israeli adults. The second involved 313 Israeli management students who responded to a self-report questionnaire. The third involved interviews with 101 Israeli small business owners.

**Findings** – The results of the first study showed few gender differences in entrepreneurial traits and values. The results of the second study showed large gender differences in the willingness to start a business among management students and smaller differences among students who intend to start a business. Gender differences were far smaller among actual business owners. Alone and together the three studies support Schneider's ASA model.

**Practical implications** – The practical implications of these findings are addressed.

**Originality/value** – The paper provides valuable information on gender differences in entrepreneurship.

**Keywords** Gender differences, Entrepreneurialism, Women, Perception

**Paper type** Research paper

Interest in entrepreneurship has never been higher than it is at the beginning of the twenty first century (Zimmerer and Scarborough, 2001). A fast growing part of this interest has focused on women entrepreneurs (e.g. Bruni *et al.*, 2004; Boyd, 2005; Mulholland, 1996; Pines, 2002). Studies attempted to identify motivations propelling women to start new businesses and obstacles to their success (e.g. Belcourt, 1990; Bennett and Dann, 2000; Hisrich and Oetzuerk, 1999) and calls were made for more research on women entrepreneurs (Catley and Hamilton, 1998). The response to these calls included, most recently, two edited volumes (Brush *et al.*, 2006a, b) and two special issues in a journal devoted to entrepreneurship (De Bruin *et al.*, 2006, 2007).

While research interest and the number of women entrepreneurs have accelerated radically (Weiler and Bernasek, 2001) and women-owned businesses represent the



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In this paper, the term "sexes" denotes the grouping of people into male and female categories whereas the term gender refers to the meanings that societies and individuals ascribe to these categories.

fastest growing segment of small businesses (Moore, 1999), women's entrepreneurship is still significantly lower than that of men (Langowitz and Minniti, 2007). A Global Entrepreneurship Monitor (GEM) study that examined entrepreneurship rates in 34 countries, showed in all these countries significantly lower rates for women (Minniti *et al.*, 2004).

Women's entrepreneurial inferiority has global implications for several reasons:

- Women constitute one of the groups most susceptible to poverty (Pearce, 1990).
- Starting a business is an occupational channel for women to advance economically (Izyumov and Razumnova, 2000).
- Women's entrepreneurship can be a route for national economic growth for countries that encourage it (Minniti *et al.*, 2004).

Interestingly, GEM data have shown that women's entrepreneurship rates tend to be higher in poor countries, where women do not have other income options. The explanation offered noted the difference between "Opportunity" and "Necessity" entrepreneurship, the latter characterizing women more than men (Reynolds *et al.*, 2003). In other words, when women are forced to, they can be much more entrepreneurial.

In a similar vein, the results of a large 17-nation study showed that subjective perceptual variables have a crucial influence on the entrepreneurial propensity of women and account for much of the gender difference in entrepreneurship. The study showed that women tend to perceive themselves and the entrepreneurial environment less favorably than men, regardless of their motivation. This suggests that perceptual variables may be a significant universal factor influencing women's entrepreneurship (Langowitz and Minniti, 2007).

Both the Reynolds *et al.* (2003) and the Langowitz and Minniti (2007) findings can be understood in the context of Schneider's (1987) Attraction Selection Attrition (ASA) model. Schneider's basic proposition is that the processes of attraction to organizations, selection into organizations, and attrition from organizations produce over time a restriction of range on individual differences. Consequently, people who remain in an organization over time come to be rather similar. This has been referred to as the homogeneity hypothesis. Several studies provided support for the homogeneity hypothesis (e.g. Denton, 1999; Ostroff and Rothausen, 1997; Schneider *et al.*, 1998). Denton (1999), for example, documented a pattern of decreasing variance in employee personality with organizational tenure. The interactions among people with similar attitudes, values, and personalities define the organizations' culture, climate, structure, and work processes (Schneider *et al.*, 1998).

The ASA model is supported by the Person-Organization fit theory (P-O Fit), which refers to the compatibility between a person and the organization, emphasizing the extent to which a person and the organization share similar characteristics (Caplan, 1987; Kristof, 1996). P-O Fit occurs when there is a good match between the characteristics of a particular organization or job and the characteristics of the person working in that organization/job. Individuals tend to make job choice decisions based on P-O Fit. They prefer organizations that have the same "personality" as they do (Cable and Judge, 1994; Chatman, 1989, 1991; Judge and Bretz, 1992). P-O Fit research suggests that the closer the match between individuals' and organizational attitudes, values, and personality, the better their job satisfaction, performance and organizational commitment (O'Reilly *et al.*, 1991).

Based on Schneider's (1987) ASA model and on P-O Fit theory, it can be expected that men and women who are attracted to an entrepreneurial career, who go through the

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selection process that screens out those who do not have the needed attitudes, values, and personality, and who acquire the skills and experience needed for managing a business, will end up being rather similar, whether they are male or female.

Following this line of reasoning, three studies were conducted. Each one of the studies focused on a different subject population with different levels of interest and involvement in entrepreneurship, starting (in the first study) with a national survey of entrepreneurial self perceptions, followed by an investigation (in the second study) of perceived entrepreneurial traits and characteristics among young people preparing for a business career, and ending (in the third study) with a study of actual entrepreneurs who own small businesses. Based on the ASA model it was expected that with each stage of the model (from attraction through selection to attrition) gender differences in entrepreneurial values and self-perceptions will decrease.

### **Study I. National survey of entrepreneurial traits and values of men and women**

The first study involved a national survey of perceptions regarding high-technology entrepreneurs (high tech). The study was based on the notion that national culture can be a platform for ideologies that may encourage or discourage the entrepreneurial behavior of individuals (Raz, 2002; Trompenaars, 1994; Tiessen, 1997). The study, which was conducted in collaboration with the sociologist Aviad Raz, focused on gender differences in subjective perceptions of high-tech entrepreneurship in Israel.

The reason for the choice of this industry was the phenomenal success of the Israeli high-tech in terms of such things as the relative number of start-ups, rate of growth, level of venture capital investments, and product development (De Fontenay and Carmel, 2004; Pines *et al.*, 2004). The success of the Israeli high-tech industry has turned entrepreneurs into the newest Israeli cultural heroes and role models, figures to be respected and emulated by large parts of the younger generation (Lerner and Avrahami, 1999; Pines *et al.*, 2005).

In a study that demonstrated this, MBA students in Israel, the USA and Hungary were asked to compare the social status of high-tech entrepreneurs to that of other professionals, rate themselves on traits that were identified as characterizing successful high-tech entrepreneurs, and rate the risk they were willing to take to join a start-up. Results showed that the Israelis perceived entrepreneurs as having higher social status than did the Americans and Hungarians. Israelis also demonstrated greater risk taking tendencies, expressed in their readiness to leave a secure job to join a start-up. Furthermore, Israelis and Americans rated themselves higher than Hungarians in love of challenge, independence and initiative the traits that were rated highest by successful high tech entrepreneurs. A cautious attempt was made to relate these findings to the total entrepreneurial activity and the percent of the population who start new businesses in the three countries (Pines *et al.*, 2005).

Returning to the issue of gender differences in entrepreneurial values and perceptions and to Schneider's (1987) ASA model, it is interesting to note that studies of gender differences in work values underwent a change from studies in the 1990s that showed gender differences in these values (such as women's greater emphasis on non materialistic work values and on the importance of finding meaning in life) (e.g. Beutel and Marini, 1995, Gooderham *et al.*, 2004, Nilsen, 1992), to studies since the turn of the century that show a decrease in gender-based differences in work values (Marini *et al.*, 1996; Gooderham *et al.*, 2004).

*Hypotheses*

Based on the attraction aspect of Schneider's (1987) ASA model as well as the recent studies showing a decrease in gender based differences in work values and on the studies showing entrepreneurs to be the new Israeli cultural heroes, few gender differences in entrepreneurial values, self perceptions and propensity were expected.

**Method***Participants*

A representative sample of the Israeli adult population ( $n = 514$ ) 49 percent male and 51 percent female, ranging in age from 18 to 85. Sampling was random and was done (as is customary with national samples) using a stratification method.

*Instrument*

Participants were asked to rate on seven-point scales ranging from: 1 = not at all to 7 = very much, to what extent 19 traits characterize them. Among them were 14 traits that were found in a previous study (Pines *et al.*, 2002; Alpha Cronbach 0.82) to characterize successful high-tech entrepreneurs (e.g. love of challenges, initiative, having dreams, creativity, risk taking) or successful managers (need for control, love of management, realism). In addition, five work-related values were added (e.g. self actualization, job security).

*Procedure*

The interviews were conducted by phone, in Hebrew, with interviewees who indicated that they were at least 18 years old.

**Results**

The highest rated of the 19 variables was self-actualization (Mean = 6.1 SD = 1.4), the second was realism (Mean = 6.05 SD = 1.2). A factor analysis (principal component with Varimax rotation) that was performed on the 19 traits, revealed four factors that explained 48 percent of the variance. The first factor – Entrepreneur – loaded highest on risk taker, loves challenges, entrepreneurial, creative and has initiative and explained 25.1 percent of the variance. The second factor – Reward focus – loaded highest on expects rewards for entrepreneurial activity, for investment and effort, and explained 9.2 percent of the variance. The third factor – Manager – loaded highest on confident, optimistic and loves to manage and explained 7.11 percent of the variance. The fourth factor – Security focus – loaded highest on persistent and values job security and explained 6.7 percent of the variance. Using factor scores, t tests comparing men and women were performed. The results revealed no gender differences in any of the factors (see Table I). On the first factor – Entrepreneurship – the factor that explained the largest part of the variance, the mean for men was 5.1 and for women = 5.0  $F(1; 512) = 0.10$   $p = 0.22$ .

However, when *t*-tests were performed on the 19 traits (see Table II), few gender differences emerged. Women were found to value job security more than men (Mw = 6.3 Mm = 5.8;  $t = -3.2$   $p < 0.00$ ) whereas men described themselves as more confident (Mm = 6.0 Mw = 5.7;  $t = 2.6$   $p < 0.01$ ) as loving challenges more (Mm = 5.3 Mw = 4.9;  $t = 2.6$   $p < 0.01$ ) and as loving more to manage (Mm = 5.3 Mw = 4.8;  $t = 2.6$   $p < 0.01$ ).

### Discussion of study I

The results of the study suggest that Israeli men and women rate themselves high on traits that load high on the “entrepreneur” factor. This finding may be viewed as supporting a notion of national culture as a platform for ideologies that can encourage entrepreneurship (Raz, 2002; Langowitz and Minniti, 2007; Tiessen, 1997; Trompenaars, 1994) and as related to the flourishing of venture culture in Israel (De Fontenay and Carmel, 2004; Pines *et al.*, 2004, 2005).

The results also provide tentative support for the attraction aspect of Schneider’s ASA model. Israeli men and women, who have been exposed to the phenomenal success of the high-tech industry, develop similar attitudes, values, and traits that help promote entrepreneurs into cultural heroes; role models to respect, identify with and emulate.

Furthermore, the results support the studies that documented a decrease in gender based differences in work values (Marini *et al.*, 1996; Gooderham *et al.*, 2004): women appear to rate themselves very similarly to men on most entrepreneurial values.

The few gender differences found in entrepreneurial self-descriptions may help explain women’s entrepreneurial inferiority (Langowitz and Minniti, 2007; Minniti *et al.*, 2004). Women’s description of themselves as valuing job security more than men and men’s description of themselves as more confident, as loving challenges more and as

Factor	Israeli men		Israeli women		<i>F</i>	<i>p</i>	Eta sq.
	Mean	SD	Mean	SD			
1. Entrepreneur	5.12	1.25	5.03	1.04	0.10	0.22	0.00
2. Reward focus	4.97	1.00	4.87	1.66	1.50	0.75	0.00
3. Manager	5.70	1.09	5.43	1.21	0.53	0.47	0.00
4. Security focus	5.76	1.21	5.99	1.14	3.02	0.08	0.00
Overall					1.70	0.15	0.00

**Table I.**  
Gender differences in  
self-descriptions: four  
factors

Traits	Israeli men		Israeli women		<i>t</i>	<i>p</i>
	Mean	SD	Mean	SD		
Self actualized	6.02	1.39	6.12	1.41	-0.80	0.422
A dreamer	6.03	1.25	6.07	1.20	-0.38	0.708
Confident	5.96	1.25	5.66	1.38	2.59	0.010
Optimistic	5.83	1.36	5.80	1.47	0.26	0.793
Job security	5.82	1.61	6.25	1.29	-3.24	0.001
Independent	5.82	1.47	5.90	1.48	-0.63	0.526
Persistent	5.76	1.45	5.81	1.50	-0.40	0.691
Wants rewards	5.42	1.71	5.21	1.98	1.29	0.199
Shows initiative	5.34	1.50	5.36	1.59	-0.16	0.873
Loves to manage	5.28	1.86	4.84	2.00	2.58	0.010
Creative	5.26	1.45	5.09	1.75	1.18	0.238
Realistic	5.15	1.88	5.40	1.85	-1.52	0.129
Entrepreneur’s rewards	4.90	1.67	4.59	1.99	1.84	0.066
Needs control	4.89	1.71	4.99	1.84	-0.62	0.536
Patient to failure	4.78	1.74	4.71	1.54	0.48	0.631
Values success	4.38	1.82	4.34	1.97	0.24	0.812
Risk taker	4.14	1.86	4.00	1.93	0.77	0.445
Rebellious	3.92	2.04	3.86	2.13	0.36	0.719

**Table II.**  
Gender differences in self  
description of Israelis  
(National sample) –  
*t*-tests

loving more to manage than women, can help explain men's greater entrepreneurial propensity and women's greater reluctance to take entrepreneurial risks.

The cause of these and similar gender differences has been attributed by some researchers to social forces such as socialization, cultural norms and gender roles and stereotypes and thus as changeable (e.g. Basow, 1992; Deaux and LaFrance, 1998; Ruble and Martin, 1998; Spence and Buckner, 2000). Other researchers attributed them to evolutionary forces such as natural selection (e.g. Buss, 2000; Fisher, 1999) and thus as innate and fundamentally unchangeable.

## **Study II. Gender differences in entrepreneurial traits and values and intention to start a business among management students**

While the first study assessed entrepreneurship related traits and values among Israelis in general, the second study addressed entrepreneurial traits and values among a group known to have positive attitudes towards entrepreneurship in general and towards business entrepreneurship in particular, namely management students. The study investigated gender differences in the entrepreneurial propensity of Israeli management students.

As women started moving into the labor market in growing numbers, the increase was especially noted in business (Moore, 1999) and management (Simpson and Sturges, 2007). Nevertheless, in most countries (including Israel) and most sectors, men continue to outnumber women at the highest management levels. One strategy men and women adopt in order to move into higher levels of management and get the skills and knowledge needed for starting a business, is to equip themselves with a management degree (Burke, 1994; Simpson and Altman, 2000). The increase in the number of MBA programs in North America and Europe is indicative of the perceived benefits of this degree (Simpson and Sturges, 2007). The second study examined gender differences in perceived entrepreneurial traits, values, and career plans regarding starting a business of Israeli management students.

### *Hypotheses*

Based on both the attraction and selection aspects of Schneider's (1987) ASA model few gender differences in entrepreneurial values, self perceptions and propensity were expected among management students and even fewer gender differences were expected among students who own a business or intend to start a business.

### *Method*

#### *Participants*

These comprised 313 Management students at BGU (52 percent women, mean age 25 and 48 percent men, mean age 27). The age difference can be explained by Israeli men's longer army service.

#### *Instrument*

A specially designed self-report questionnaire that included seven parts:

- (1) *Background information*. This included gender, age, years of education, academic degree and entrepreneurial background (e.g. Does a close family member or friend own a business?).

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- (2) *Entrepreneurial intentions*. Did you or do you own a business? Do you intend to start a business? Is it better to own a business or be an employee?
  - (3) *Entrepreneurial qualifications*. To what extent do you think you have the qualifications to start a business?
  - (4) *Reasons to start a business*. Respondents were asked to rate the importance of eight reasons for starting a business (the high status of business owners, desire to be one's own boss, dislike of authority, desire to make a lot of money, self actualization, flexibility in work hours; facing unemployment, have something to pass on to one's children).
  - (5) *Conditions for starting a business*. Respondents were asked to rate the importance of six conditions for starting a business (a good business idea, business skills, business knowledge, an entrepreneurial personality, financial resources, a feasibility study).
  - (6) *Entrepreneurial and managerial traits*. Respondents were asked, as was done in the first study, to what extent they are personally characterized by 13 of the traits that were found in an earlier study (Pines *et al.*, 2002) to characterize successful high technology entrepreneurs (e.g. love of challenges, initiative, creativity, risk taking,) or successful managers (e.g. confidence, commitment, needs for control, love of management, realism).
  - (7) *Business-related characteristics*. Respondents were asked to what extent they have seven businesses related characteristics (e.g. business knowledge and experience, economic understanding, marketing knowledge, they love money and they have money).

All ratings were done on seven-point scales ranging from 1 = not at all to 7 = very much, etc.

### *Procedure*

The questionnaire was administered to management students during class. The students were told that it is part of a study aimed at mapping educational needs for business related entrepreneurship and that their responses will be kept strictly confidential.

### **Results**

No gender differences were found in entrepreneurial background (49 percent of the men and 44 percent of the women had a family member who owned a business ( $p = 0.59$ ). However, many more men than women (61.3 percent vs 38.7 percent) had a business or intended to start a business (Chi Sq = 23.26,  $p = 0.00$ ). Furthermore, there were gender differences in the students' perception of their suitability to be business owners: men viewed themselves as more suitable to be business owners than women (MM = 3.90, MW = 3.32,  $p = 0.00$ ).

The students were divided into two groups according to their intention to start a business: those who have a business or intend to start one and those who don't know or have no such intention.

Table III presents the data for the entire sample and for the two groups. As can be seen in the table, when the students who had a business or intended to start a business

were considered, the gender difference was much smaller and non significant (MM = 4.30, MW = 4.07,  $p = 0.06$ ).

Similar findings were revealed when the students were asked about their preference for being a business owner or an employee (see Table IV). Once again, in the total student sample, men reported greater desire to be a business owner, (MM = 3.65, MW = 3.14,  $p = 0.00$ ) but the gender difference disappeared (this time entirely) when only the students who had a business or intended to start a business were considered (MM = 3.99, MW = 3.97,  $p = 0.89$ ).

A MANOVA analysis of gender differences in business related characteristics, including business and economic knowledge, understanding of various business aspects, love of money and having money, revealed no significant gender difference, either in the total sample of management students ( $F(7, 289) = 1.23, p = 0.29$ ), or in the group of students who have a business or intent to start one ( $F(7, 139) = 1.45, p = 0.19$ ) (see Tables V and VI).

Univariate ANOVA for each business related characteristic revealed only one gender difference, in the total sample in budget understanding. Women describe themselves as having greater budget understanding than men. A slight difference was also found in the group of students who intend to start or have a business, but this time the difference did not reach statistical significance ( $p = 0.07$ ).

When the students rated the importance of various reasons for starting a business (see Tables VII and VIII) the rank order was similar for men and women (except for self

**Table III.**  
Gender differences in perceived suitability to be a business owner

	Men		Women		<i>t</i>	<i>p</i>	<i>n</i>
	Mean	SD	Mean	SD			
All students	3.90	0.94	3.32	1.08	5.07	0.00	147:163
Has a business/intends to start a business	4.30	0.70	4.07	0.76	1.94	0.06	94:60

**Table IV.**  
Gender differences in the preference to be a business owner

	Men		Women		<i>t</i>	<i>p</i>	<i>n</i>
	Mean	SD	Mean	SD			
All students	3.65	1.26	3.14	1.25	3.52	0.00	145:163
Has a business/intends to start a business	3.99	1.00	3.97	0.86	0.14	0.89	93:60

**Table V.**  
Gender differences in business-related characteristics – all students

Traits	Men		Women		<i>F</i> (1, 295)	<i>p</i>	Eta <sup>2</sup>
	Mean	SD	Mean	SD			
Love money	5.30	1.33	5.17	1.32	.80	0.37	0.00
Business knowledge	4.94	1.13	5.06	1.33	.68	0.41	0.00
Marketing knowledge	4.94	1.31	5.03	1.23	.39	0.54	0.00
Economic understanding	4.92	1.23	5.16	1.33	2.53	0.11	0.01
Business experience	4.47	1.27	4.68	1.32	1.99	0.16	0.01
Have money	4.47	1.42	4.61	1.45	0.70	0.40	0.00
Budget understanding	4.45	1.29	4.79	1.29	5.13	0.02	0.02

**Notes:**  $F(7, 289) = 1.226, p = 0.288$  Eta<sup>2</sup> = 0.029

actualization that was ranked higher by women). Nevertheless, a MANOVA revealed a significant overall gender difference:  $F(8, 294) = 3.40, p = 0.00$ . A Univariate ANOVA showed that women thought that flexibility in work hours, dislike of authority, self actualization and a desire to have something to pass on to one's children were more important reasons for starting a business than men did. No gender differences were found for the desire to make money and the status of a business owner.

When the importance ratings of students who owned a business or intended to start a business were examined, the gender differences disappeared again, as indicated by the results of a MANOVA:  $F(8, 145) = 1.05, p = 0.40$ .

	Mean	SD	Mean	SD	$F(1, 145)$	$p$	Eta <sup>2</sup>
Love money	5.20	1.44	4.81	1.24	2.71	0.10	0.02
Business knowledge	5.02	1.05	5.04	1.35	0.00	0.96	0.00
Economic understanding	4.98	1.21	5.21	1.42	1.10	0.30	0.01
Marketing knowledge	4.99	1.33	5.31	1.11	2.17	0.14	0.02
Business experience	4.50	1.32	4.72	1.31	0.98	0.33	0.01
Budget understanding	4.43	1.36	4.86	1.40	3.39	0.07	0.02
Have money	4.42	1.48	4.20	1.32	0.82	0.37	0.01

Notes:  $F(7, 139) = 1.445, p = 0.192$  Eta<sup>2</sup> = 0.068

**Table VI.**  
Gender differences in business-related characteristics – has a business/intends to start a business

Reasons to start a business	Men		Women		$F(1, 301)$	$p$	Eta <sup>2</sup>
	Mean	SD	Mean	SD			
Desire to be their own boss	6.00	1.00	6.18	0.98	2.61	0.11	0.01
Desire to make a lot of money	5.95	1.07	5.99	1.11	0.11	0.74	0.00
Self actualization	5.86	1.20	6.17	1.15	5.52	0.02	0.02
Dislike of authority	5.15	1.31	5.58	1.27	8.38	0.00	0.03
Flexibility in work hours	4.21	1.64	4.92	1.37	16.67	0.00	0.05
Pass on to children	4.10	1.57	4.51	1.44	5.35	0.02	0.02
High status of a business owner	4.09	1.47	4.30	1.40	1.67	0.20	0.01
Facing unemployment	4.04	1.54	4.13	1.52	0.26	0.61	0.00

Notes:  $F(8, 294) = 3.396, p = 0.001$  Eta<sup>2</sup> = 0.085

**Table VII.**  
Gender differences in the reasons given for why people start businesses – all students

	Mean	SD	Mean	SD	$F(1, 152)$	$p$	Eta <sup>2</sup>
Self actualization	6.10	1.20	6.44	0.94	3.56	0.06	0.02
Desire to be their own boss	6.04	1.02	6.18	0.87	0.78	0.38	0.01
Desire to make a lot of money	5.95	1.06	5.87	1.06	0.23	0.63	0.00
Dislike of authority	5.10	1.38	5.24	1.22	0.37	0.54	0.00
Flexibility in work hours	4.35	1.75	4.78	1.34	2.62	0.11	0.02
Pass on to children	4.27	1.59	4.61	1.39	1.79	0.18	0.01
High status of a business owner	4.10	1.47	4.34	1.25	1.14	0.29	0.01
Facing unemployment	4.04	1.67	3.81	1.48	0.72	0.40	0.00

Notes:  $F(8, 145) = 1.050, p = 0.402$  Eta<sup>2</sup> = 0.055

**Table VIII.**  
Gender differences in the reasons given for why people start businesses – has a business/intends to start a business

Tables IX and X present gender differences in the students' perception of the necessary conditions for starting a business using a MANOVA. The first part of the table, which presents the data for the total sample, revealed a significant overall gender difference  $F(6, 304) = 3.76, p = 0.001$ . Univariate ANOVA for each condition revealed that women rated higher a feasibility study, an entrepreneurial personality, financial resources and business skills.

In Table X the data of the students who indicated that they either own a business or intend to start a business are presented. Here, once again, a MANOVA revealed no over-all gender difference ( $F(6, 149) = 1.74, p = 0.12$ ). The only significant gender difference found using a Univariate ANOVA was women's higher rating of the importance of business skills for starting a business.

Gender differences were also examined in the self-descriptions of the students on the traits that were found to characterize either successful high tech entrepreneurs (e.g. love of challenges and creativity) or successful managers (e.g. love of management and realism), and the business related characteristics (e.g. love of money, business knowledge and experience).

A MANOVA revealed a significant overall gender difference:  $F(13, 275) = 3.99, p = 0.00$  (see Tables XI and XII). Looking at specific traits it appears that men described themselves as greater risk takers, greater dreamers, as showing greater initiative, as greater lovers of challenge and as more optimistic – all of these are documented entrepreneurial traits. On the other hand, women only described themselves as more committed.

The overall gender difference was far smaller for the group of students who either had a business or intended to start a business  $F(13, 134) = 1.91, p = 0.04$ . The small difference found resulted, once again, from women describing themselves as more committed.

**Table IX.**  
Gender differences in the rating of the conditions for starting a business – all students

Conditions	Men		Women		$F(1, 309)$	$p$	Eta <sup>2</sup>
	Mean	SD	Mean	SD			
A good business idea	6.79	5.90	6.47	0.91	0.46	0.50	0.00
Feasibility study	6.19	.95	6.55	0.86	12.12	0.00	0.04
Entrepreneurial personality	6.02	0.96	6.33	0.94	8.05	0.01	0.02
Business skills	5.89	1.02	6.21	0.98	7.73	0.01	0.02
Financial resources	5.84	1.15	6.17	0.95	7.67	0.01	0.02
Business knowledge	5.50	1.09	5.75	1.18	3.46	0.06	0.01

**Notes:**  $F(6, 304) = 3.726, p = 0.001$  Eta<sup>2</sup> = 0.069

**Table X.**  
Gender differences in the rating of the conditions for starting a business – has a business/intends to start a business

Conditions	Mean	SD	Mean	SD	$F(1, 154)$	$p$	Eta <sup>2</sup>
A good business idea	7.16	7.25	6.63	0.72	0.32	0.57	0.00
Feasibility study	6.24	0.95	6.44	0.90	1.67	0.20	0.01
Entrepreneurial personality	6.04	0.94	6.32	0.83	3.73	0.06	0.02
Financial resources	5.88	1.18	6.00	1.03	0.42	0.52	0.00
Business skills	5.86	1.00	6.30	0.84	7.98	0.01	0.05
Business knowledge	5.48	1.07	5.69	1.12	1.38	0.24	0.01

**Notes:**  $F(6, 149) = 1.738, p = 0.116$  Eta<sup>2</sup> = 0.065

Traits	Men		Women		<i>F</i> (1, 287)	<i>p</i>	Eta <sup>2</sup>
	Mean	SD	Mean	SD			
Energetic	6.04	5.02	5.59	1.14	1.15	0.28	0.00
Independent	5.94	1.01	5.75	1.21	2.07	0.15	0.01
Committed	5.85	1.07	6.20	1.12	7.45	0.01	0.03
Show initiative	5.67	1.02	5.27	1.23	9.02	0.00	0.03
Realistic	5.59	1.43	5.86	1.21	2.99	0.09	0.01
Loves challenge	5.58	1.25	5.12	1.40	8.59	0.00	0.03
Loves to manage	5.57	1.31	5.59	1.23	0.02	0.89	0.00
Involved	5.50	1.13	5.60	1.34	0.49	0.49	0.00
Optimistic	5.44	1.26	5.11	1.29	4.66	0.03	0.02
Creative	5.32	1.22	5.07	1.23	3.21	0.07	0.01
A dreamer	5.22	1.51	4.57	1.74	11.48	0.00	0.04
Need control	4.72	1.58	4.67	1.54	0.08	0.78	0.00
Risk taker	4.47	1.36	3.91	1.34	11.97	0.00	0.04

Notes:  $F(13, 275) = 3.989, p = 0.000$  Eta<sup>2</sup> = 0.159

**Table XI.**  
Gender differences in self-description – all students

	Mean	SD	Mean	SD	<i>F</i> (1, 146)	<i>p</i>	Eta <sup>2</sup>
Energetic	6.32	6.14	5.84	1.05	0.34	0.56	0.00
Independent	6.07	1.01	6.25	0.92	1.28	0.26	0.01
Committed	5.86	1.07	6.23	1.09	4.02	0.05	0.03
Show initiative	5.85	.97	5.58	1.32	2.08	0.15	0.01
Loves challenge	5.79	1.15	5.53	1.13	1.81	0.18	0.01
Loves to manage	5.74	1.28	6.08	1.07	2.88	0.09	0.02
Optimistic	5.62	1.21	5.41	1.30	0.99	0.32	0.01
Involved	5.57	1.19	5.79	1.32	1.15	0.29	0.01
Realistic	5.55	1.37	5.46	1.33	0.19	0.67	0.00
A dreamer	5.49	1.49	5.04	1.62	2.97	0.09	0.02
Creative	5.46	1.28	5.58	1.10	0.32	0.57	0.00
Need control	4.78	1.65	5.02	1.46	0.85	0.36	0.01
Risk taker	4.68	1.49	4.47	1.24	0.85	0.36	0.01

Notes:  $F(13, 134) = 1.905, p = 0.035$  Eta<sup>2</sup> = 0.156

**Table XII.**  
Gender differences in self-description – has a business/intends to start a business

Interestingly, none of the gender differences in entrepreneurial traits that were found in the entire student sample (risk taking, having dreams, initiative, love of challenge and optimism) were found in this more select group of students.

## Discussion of study II

About twice as many male than female management students either had a business or intended to start one, male students viewed themselves as more suitable to be a business owner, expressed greater preference for being one, and described themselves as having more entrepreneurial traits. Female management students described themselves as more committed. These findings can be explained by Langowitz and Minniti's (2007) research and conclusion that women tend to perceive themselves in a less favorable light as entrepreneurs than men.

However, all the gender differences in self-perceived entrepreneurial traits, including the reasons and the conditions for starting a business, almost disappeared in the group of the management students who either owned a business or intended to start a business. This can be viewed as a demonstration of both the attraction and the selection aspects of Schneider's (1987) ASA model. Men and women who owned a business or who wanted to start a business as their career path, were far more similar to each other in entrepreneurial traits and motivations than were management students in general (who can still be presumed to be more business oriented than the general public). As expected by Schneider's (1987) ASA model, men and women who are attracted to an entrepreneurial business career, who go through the selection process that screens out those who do not have the needed attitudes, values, personality and conditions, and who acquire (through school or experience) the knowledge and skills needed for managing a business, end up being rather similar, whether they are male or female.

In addition, no gender differences were found in business related characteristics (such as business and economic knowledge and understanding) either in the total sample or the group of students who have a business or intend to have one.

Why then are women so reluctant to choose starting a business as a career option? Part of the answer may be the greater self confidence, love of challenge, initiative and optimism of male students which may contribute to their greater willingness to take the risk necessary to start a business, and may also explain the gender differences in the number of businesses and types of businesses men and women go on to build.

These differences can again be explained either by social forces such as socialization, cultural norms and gender roles and stereotypes (e.g. Basow, 1992; Deaux and LaFrance, 1998; Ruble and Martin, 1998; Spence and Buckner, 2000), or by evolutionary forces such as natural selection (e.g. Buss, 2000; Darwin, 1871; Fisher, 1999; Geary, 1998).

### **Study III. Gender differences in entrepreneurial traits and values of small business owners**

While the first study examined the entrepreneurial propensity of Israeli men and women in general and the second study examined it among management students with an interest in business, the third study focused on men and women small business owners (SBO), which is to say men and women who were attracted to a business career, who passed through the selection necessary to succeed in starting a business, and survived the process of attrition.

Like research on other topics (Tavris, 1992), early research on entrepreneurs and business owners focused on the traits, experiences and performance of men. Only in recent years research has started to focus on women (Brush *et al.*, 2006a, b; Moore, 1999; Fotinato-Ventouratos, 2006). A very small segment of this research addressed women small business owners, possibly because of the small rates of women who own businesses (Bosma and Harding, 2007). However, such research is urgently needed because women owned businesses are a fast growing segment of small businesses (Moore, 1999) and small businesses can be an important component in economic growth of nations (Brush *et al.*, 2006a, b).

Of the studies that addressed gender differences among SBO, some demonstrated the existence of gender differences (e.g. Danes *et al.*, 2005, who showed that women had a higher emotional discourse style for managing their family businesses than men) whereas others demonstrated gender similarities (e.g. Cliff *et al.*, 2005, who showed that

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while small business owners talk as if they organize and manage their firms in different – gender stereotypic – ways, they do not do so in practice).

These findings can be viewed as part of a major controversy that has been raging for 30 years regarding gender differences in management: Are men and women managers similar (e.g. Kanter, 1993) or different? And if they are different, are men better managers than women (e.g. Henning and Jardim, 1978) and women should learn how to manage like a man if they are to succeed, or are women better managers than men (e.g. Helgesen, 1990; Fisher, 1999) because they have a “female advantage”? This controversy is related to the more general debate regarding the origin of gender differences, with those arguing that men and women managers are basically similar on the side of the social perspective and those arguing that they are different (both those arguing that men are better managers and those arguing that women are better managers) on the side of the evolutionary perspective.

### *Hypotheses*

Based on the attraction, selection and attrition aspects of Schneider’s (1987) ASA model, no gender differences in entrepreneurial values, self perceptions and propensity were expected.

### **Method**

#### *Participants*

These comprise 101 Israeli SBO, 32 percent women (average age 39.5) and 68 percent men (average age 41). Women had more years of education (14.3) than men (12.9). The businesses of both men and women involved mostly sales and services to end users in the local and regional market (no export).

#### *Instrument*

A specially designed self-report questionnaire included four parts:

- (1) *Background information*. This included gender, age, marital status, years and type of education, number of siblings and place among them, father’s and mother’s involvement in business, army experience, occupational history including work before starting the business.
- (2) *Business characteristics*. Participants described various characteristics of their business (e.g. number of partners, percent of ownership) and their work (e.g. work hours).
- (3) *Reasons to start a business*. Respondents were asked to rate the importance of eight reasons for starting a business, the same reasons that were included in the questionnaire used in the second study (the high status of business owners, desire to be one’s own boss, dislike of authority, desire to make a lot of money, self actualization, flexibility in work hours; facing unemployment, have something to pass on to one’s children).
- (4) *Entrepreneurial traits and values*. Respondents were asked, as was done in the first and second studies, to what extent they had 13 of the traits that were found in an earlier study (Pines *et al.*, 2002) to characterize successful high technology entrepreneurs (e.g. love of challenges, initiative, creativity, risk taking,) or successful managers (e.g. confidence, commitment, needs for control, love of

management, realism). The last traits were also found to characterize SBO (Pines and Schwartz, 2006).

All responses were given on seven point scales ranging from 1 = not at all, to 7 = very much.

### *Procedure*

The questionnaires were administered individually, in an interview format, by graduate management students to SBO who were chosen randomly from a list of SBO in cities in the south and center of Israel, obtained from the Israeli Small Business Bureau.

Most of those approached agreed to participate, and those who did not, explained it in time pressures. Anonymity was assured and carefully observed.

### **Results**

The results revealed a number of similarities between men and women SBO in background: both men and women SBO came from large families (Mm = 4.4 vs Mw = 3.7) both were often first born (25 percent of the men vs 54 percent of the women), the fathers of both were often business owners (29 percent M vs 38 percent W) both worked before starting their business and a similar length of time (Mm = 1.6 vs Mw = 2.2  $t = 2.3$   $p = 0.03$ ).

The results also revealed a number of differences in background between men and women SBO: a higher percent of women's mothers were business owners (1.7 percent M vs 21.4 percent W) and a higher percent of women's spouses were business owners (11 percent M vs 33 percent W).

In addition, there were some gender differences in SBO's educational background: more women had an academic degree (50 percent W vs 17 percent M) and a management degree (12 percent W vs 2 percent M) but more men had a technical background (38 percent M vs 10 percent W) and technical education (51 percent M vs 20 percent W).

There were also gender differences in SBO's army service (which is compulsory for all Israeli youth): more women did not serve in the army (26.9 percent W vs 10.6 percent M) whereas more men were commanders (11 percent M vs 0 percent W) and more men were combat soldiers (1 percent M vs 0 percent W). On the other hand, a similar percent of men and women held professional jobs (44 percent M vs 41 percent W) and a similar percent served as officers (6 percent M vs 8 percent W).

In terms of the characteristics of their businesses, there were more similarities than differences between small businesses owned by men as compared to those owned by women: Men and women SBO had a similar percent of ownership in their businesses (83 percent M 85 percent W), they worked a similar high number of hours per month (Mm = 250 Mw = 225), their businesses were of a similar age (Mm = 10 Mw = 7 years), and showed a similar level of market penetration (Mm = 4.3 Mw = 4.8). However, women tended to have more partners (1 M vs 1.4 W) and women described their businesses as slightly more successful economically (Mm = 4.9 Mw = 5.5).

Most of the men and the women were owners and managers of their business (95.4 percent M vs 96.2 percent W), both the men and the women described the actual work they did as involving mostly work with people (92.6 percent M 92.9 percent W), both men's and women's businesses were directed at the private market (87 percent M 91 percent W) and a similar percent of their businesses were making a profit (65 percent M 63 percent W). However, more of the businesses owned by men were at the mature

stage than women owned businesses (56 percent M 30 percent W) and, while both men and women SBO tended to have partners, women tended to have more partners than men did (64 percent M 89 percent W).

The SBO were asked to rate the importance of different reasons for starting a business. A MANOVA that was performed on their ratings revealed no overall gender differences:  $F(8, 73) = 1.27, p = 0.27$ . Univariate ANOVA analyses for each variable (see Table XIII) also show no gender differences. However, there were gender differences in rank order: the highest rated reason for starting a business for both men and women was self actualization, but women rated self actualization slightly higher than men ( $M_m = 5.9$   $M_w = 6.4$ ) whereas men rated the status of a business owner slightly higher than women ( $M_m = 3.4$   $M_w = 2.5$ ). The lowest rated motivation for both men and women was facing unemployment ( $M_m = 2.1$   $M_w = 2.2$ ).

A MANOVA that was performed on SBO's self descriptions on the entrepreneurial and managerial traits revealed no overall gender difference:  $F(13, 85) = 1.02 p = 0.44$ . A Univariate ANOVA that was performed for each trait (see Table XIV) revealed one significant difference in optimism: men described themselves as more optimistic ( $M_m = 6.2$   $M_w = 5.7$   $F = 4.4 p = 0.04$ ).

Reasons	Men		Women		F	p	Eta <sup>2</sup>
	Mean	SD	Mean	SD			
Self actualization	5.87	1.65	6.36	0.90	1.79	0.19	0.02
Desire to make a lot of money	5.75	1.51	5.41	1.65	0.78	0.38	0.01
Desire to be their own boss	5.57	2.09	5.86	2.01	0.33	0.57	0.00
Dislike of authority	4.68	2.30	5.36	1.84	1.55	0.22	0.02
Flexibility in work hours	4.25	2.51	4.73	2.60	0.57	0.45	0.01
Pass on to children	3.87	2.52	3.14	2.62	1.32	0.25	0.02
High status of a business owner	3.43	2.25	2.50	2.13	2.85	0.10	0.03
Facing unemployment	2.12	2.16	2.18	2.17	0.02	0.90	0.00

Notes:  $F(8,73) = 1.273, p = 0.271, \text{Eta}^2 = 0.122$

**Table XIII.**  
Gender differences in the motivations for starting a business of SBOs

Traits	Men		Women		F(1, 197)	p	Eta <sup>2</sup>
	Mean	SD	Mean	SD			
Independent	6.74	0.54	6.81	0.40	0.43	0.51	0.00
Show initiative	6.53	0.76	6.42	0.76	0.44	0.51	0.01
Committed	6.47	1.14	6.61	0.72	0.41	0.52	0.00
Loves to manage	6.46	1.07	6.35	1.17	0.18	0.67	0.00
Energetic	6.44	0.92	6.23	1.02	1.09	0.30	0.01
Realistic	6.32	0.92	6.13	1.12	0.83	0.37	0.01
Involved	6.24	1.19	6.42	0.67	0.65	0.42	0.01
Optimistic	6.24	1.15	5.68	1.38	4.43	0.04	0.04
Loves challenge	6.16	1.39	6.39	0.80	0.71	0.40	0.01
Creative	6.04	1.26	5.90	1.04	0.29	0.59	0.00
Need control	6.03	1.30	5.84	1.32	0.45	0.50	0.01
A dreamer	5.79	1.63	5.61	1.78	0.25	0.62	0.00
Risk taker	5.60	1.69	5.32	1.33	0.66	0.42	0.01

Notes:  $F(13,85) = 1.017, p = 0.443, \text{Eta}^2 = 135$

**Table XIV.**  
Gender differences in the self-descriptions of SBOs

### Discussion of study III

Results of the comparison between the male and female SBOs showed far more similarities than differences (see also Pines and Schwartz, 2006), including similarities in demographic characteristics, work and businesses characteristics and reasons for starting a business: Most men as well as women SBOs were first born in large families, and had fathers who were business owners (a finding reported in other studies of managers (e.g. Kets de Vries, 1995). The highest rated reason for starting a business for both men and women SBOs was self-actualization and the lowest was a fear of being fired. Most men and women SBOs were owners and managers of their business, worked with people, had a business that was directed at the private market and a similar percent of their businesses were making a profit. Men and women SBOs also described themselves similarly, the greatest being in their love of management.

These similarities support Schneider's (1987) ASA model. They suggest that men and women who are attracted to an entrepreneurial business career, who go through the selection process that screens out those who do not have what it takes, who survive the high attrition that characterizes small businesses (Scarborough and Zimmerer, 2002), end up being rather similar. (According to Scarborough and Zimmerer, 2002, 34 percent of small businesses fail within two years, and 50 percent shut down within four years).

The findings can be explained by P-O fit theory as reflecting compatibility between the characteristics of the men and women business owners and the characteristics of the businesses they have built. Such compatibility was shown to result in better performance and business success (O'Reilly *et al.*, 1991; Sadeh *et al.*, 2007). This notion is also supported by Kanter (1993) who argued that the place in the organization and the true power associated with it determine work behavior, and not gender.

The few differences found between men and women SBOs included women's greater likelihood of having a mother and a spouse who were business owners and a tendency to have more partners than men. These differences can be explained in by social role theory (e.g. Basow, 1992) as well as by women managers' preference for being at the heart of networks as opposed to men's preference for being at the top of organizations, noted by researchers such as Gilligan (1982). It can also be seen as evidence of the social support women need and use more than men in all spheres of life (Pines and Zaidman, 2003).

The differences in military experience of men and women SBOs (more men served in the army, had command duties and were combat soldiers) fit the results of studies that demonstrated the importance of the army experience, especially combat, in the career development of Israeli entrepreneurs (e.g. Avrahami and Lerner, 2003; Pines *et al.*, 2004) as well as evolutionary theory (e.g. Buss and Schmitt, 1993; Fisher, 1999; Geary, 1998) that explains men's attraction to and success in combat roles as related to their deep history as hunters.

The gender differences in education found in the study fit data presented by Sommers (2000) which demonstrate the academic superiority of females over males at all school levels and can be explained by social role theory (e.g. Basow, 1992) as a socially acceptable way for women to enter career paths that have been traditionally male dominated.

### General discussion

Literature on entrepreneurs has stemmed from three main sources:

- (1) economic writers who focused on the role of entrepreneurs in economic development;

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- (2) business writers who focused on the influence of the business environment on entrepreneurs; and
  - (3) psychologists who focused on the personality and attitudes of entrepreneurs (Deakins, 1999).

The current paper falls clearly within the third category and can be viewed as part of the rapidly growing research on women entrepreneurs (e.g. Brush *et al.*, 2006a, b; De Bruin *et al.*, 2006, 2007).

Much of this research, including a GEM study that examined the entrepreneurship rates in 34 countries (Minniti *et al.*, 2004), showed lower rates of entrepreneurship among women than among men. And, as noted in the introduction, women's entrepreneurial inferiority has global significance.

The three studies described in the paper, all of them conducted in Israel, where entrepreneurs have become cultural heroes (Lerner and Avrahami, 1999; Pines *et al.*, 2005), using different methodologies (a national telephone survey, a self report questionnaire and an interview) and different subject populations with different levels of interest and involvement in entrepreneurship (the general public, management students and small business owners) lend support to Langowitz and Minniti's (2007) notion that subjective perceptions account for much of the difference in entrepreneurial activity between the sexes and seem to be universally influencing women's entrepreneurship.

The most noteworthy finding in the three studies combined is the decrease in gender differences in entrepreneurial self perceptions with growing involvement in entrepreneurial activities from the national sample, through a comparison between students without entrepreneurial intentions compared to students who either have a business or intend to start one, to actual business owners. This progressing is best explained by Schneider's (1987) ASA model. The first study demonstrated the influence of attraction. Israeli men and women view entrepreneurs as cultural heroes and as a result they identify with them and adopt their values. The result of this attraction is the gender similarity in entrepreneurial self-perceptions and values. The second study demonstrated the influence of both attraction and selection. The male and female management students who participated in the study were not only attracted to entrepreneurship in the abstract, they chose a career and a program of career training to which they had to be selected. Those among them who either started a business or intended to start a business went through a further selection process. The result was greater homogeneity that was reflected in the greater gender similarity. The third study demonstrates the influence of attraction, selection and attrition. The men and women small business owners who took part in the study were attracted to an entrepreneurial business career, they went through a selection process that screened out those among them who did not have the necessary traits, abilities and values (and consequently never made it to the stage of actually starting their own business), they acquired the skills, knowledge and experience needed for managing a business, and they survived the high attrition rate that characterizes small businesses (Scarborough and Zimmerer, 2002), as a result the ended up being very similar.

The combined effect of attraction, selection and attrition is evident when the results of the three studies are examined altogether: Male and female management students were more similar to each other in entrepreneurial self perceptions and values than were Israeli men and women in general. Among the management students, men and women who owned a business or who wanted to start a business were more similar in

entrepreneurial traits and values than were management students in general. But the similarity was most evident among men and women SBOs who were found to be similar in demographic characteristics (most were first born, in large families, and had fathers who were business owners), in work characteristics (both worked a similar number hours, primarily with people and were most often owners and managers of their businesses), in the characteristics of their businesses (similar age, percent ownership, level of market penetration and percent that were making a profit), in the reasons they gave for starting a business (the highest rated reason for both was self actualization and the lowest rated was a fear of being fired) and entrepreneurial traits and characteristics (the greatest similarity being in their love of management).

In addition to providing support for Schneider's (1987) ASA model, the findings of the three studies have important practical implications for ways to encourage women's entrepreneurship: The gender similarities in entrepreneurial values and tendencies, when combined with the large gender differences found in management students' interest in starting a business (as well as women's greater appreciation of the necessary skills and knowledge) suggest the need for educational institutions to offer relevant courses and programs that will be available to interested women. These courses are especially important for management students who have an expressed interest in business. Governments can offer women access to financial sources and information that can encourage their entrepreneurial potential.

Future studies will need to expand the findings of the three studies beyond self report data, beyond cross-sectional design, beyond Israel and beyond the specific samples used in the current studies to longitudinal studies, with larger international samples, different social and economic strata and wider range of perceptual variables.

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**Further reading**

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