CULTURE AND ENTREPRENEURIAL POTENTIAL: A NINE COUNTRY STUDY OF LOCUS OF CONTROL AND INNOVATIVENESS

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EXECUTIVE SUMMARY

Entrepreneurship research has identified a number of personal characteristics believed to be instrumental in motivating entrepreneurial behavior. Two frequently cited personal traits associated with entrepreneurial potential are internal locus of control and innovativeness. Internal locus of control has been one of the most studied psychological traits in entrepreneurship research, while innovative activity is explicit in Schumpeter’s description of the entrepreneur. Entrepreneurial traits have been studied extensively in the United States. However, cross-cultural studies and studies in non-U.S. contexts are rare and in most cases limited to comparisons between one or two countries or cultures. Thus the question is raised: do entrepreneurial traits vary systematically across cultures and if so, why?

Culture, as the underlying system of values peculiar to a specific group or society, shapes the development of certain personality traits and motivates individuals in a society to engage in behaviors that may not be evident in other societies. Hofstede’s (1980) extensive culture study, leading to the development of four culture dimensions, provide a clear articulation of differences between countries in values, beliefs,
and work roles. Although Hofstede did not specify the relationship between culture and entrepreneurial activity per se, his culture dimensions are useful in identifying key aspects of culture related to the potential for entrepreneurial behavior.

In this paper we offer several hypotheses about the relationship between two of Hofstede’s culture dimensions and psychological traits associated with entrepreneurial potential. We expect that an internal locus of control orientation is more prevalent in individualistic cultures than in collectivistic cultures. Likewise, we expect that an innovative orientation is more prevalent in low uncertainty avoidance cultures than in high uncertainty avoidance cultures. However, since neither internal locus of control nor innovativeness alone is sufficient to explain entrepreneurial motivation, we also hypothesize that individuals with both an internal locus of control and innovative orientation should appear more frequently in highly individualistic and low uncertainty cultures.

These hypotheses were tested on a sample of over 1,800 responses to a survey of third- and fourth-year students at universities in nine countries. Eighteen items in the survey instrument were used to construct scales for innovativeness and locus of control. Items for the innovativeness scale were adapted from the Jackson Personality Inventory while items used for the locus of control scale were adapted from Rotter’s I-E scale.

The results of this exploratory study support the proposition that some cultures are more conducive for entrepreneurship than others. In individualistic cultures we found an increased likelihood of an internal locus of control orientation. There was also support for the hypothesis that an entrepreneurial orientation, defined as internal locus of control combined with innovativeness, is more likely in individualistic, low uncertainty avoidance cultures than in collectivistic, high uncertainty avoidance cultures.

Culture, it appears, may condition potential for entrepreneurship, generating differences across national and regional boundaries. One tentative conclusion is that a “supportive” national culture will, ceteris paribus, increase the entrepreneurial potential of a country. This suggests that in addition to support from political, social, and business leaders, there needs to be a supportive culture to cultivate the mind and character of the potential entrepreneur. To be motivated to act, potential entrepreneurs must perceive themselves as capable and psychologically equipped to face the challenges of a global, competitive marketplace. Business education can play an important role in this regard by providing not only the technical tools (i.e. accounting, marketing, finance, etc.), but by also helping to reorient individuals toward self-reliance, independent action, creativity, and flexible thinking.

This study examines only two entrepreneurial traits (innovativeness and internal locus of control) and only one of the many contextual factors (culture) which may explain differences among countries in the rate of new venture formation. Future research should expand this investigation to include other traits associated with entrepreneurial behavior as well as the effect of other contextual factors such as education system, political economy, and stage of economic development. © 2000 Elsevier Science Inc.

INTRODUCTION

With diminished political and economic barriers between countries and the globalization of business activities, the process of new venture formation has become an increasingly relevant and interesting area for research. The renewed interest in entrepreneurship by government policy makers and business leaders worldwide has been prompted by several factors. In advanced industrialized countries, particularly the United States, increased entrepreneurial activity is seen as a means to revitalize stagnating industries and provide new jobs to compensate for employment problems created by corporate restructuring and downsizing (Birley 1986; Birch 1979). Furthermore, entrepreneurship, touted by economists in the Schumpeterian tradition for over a century, has been rediscovered as a potential catalyst for technological progress (Schumpeter 1934; Hagen 1962; Kilby 1971; Baumol 1986). Today, entrepreneurial ventures are often seen as incubators for product and market innovation (Reynolds 1987).
In less developed countries, the encouragement of entrepreneurial activities is recommended as a way to stimulate economic growth (Harper 1991). Consequently, national incentive and education programs designed to stimulate new venture development have been instituted by the governments of a large number of Asian and Latin American countries as well as in the transition economies of Central and Eastern Europe (Audretsch 1991; Gibb 1993).

Despite the apparent universal appeal of entrepreneurship as a prescription for economic growth and development, many questions about new venture formation in non-U.S. contexts remain unanswered. For example, there is a question as to whether many of the human motivation and performance theories underlying the entrepreneurship field, developed primarily by North American researchers in a North American context, are generalizable to countries with distinctly different cultural, social, and economic climates (Adler 1991; Boyacigiller and Adler 1991; Thomas, Shenkar, and Clarke 1994). Such questions can only be answered through cross-cultural, cross-contextual research. However, with a few exceptions (Shane 1992, 1993; McGrath, MacMillan, and Scheinberg 1992; Huisman 1985; Baum et al. 1993), international comparative studies of entrepreneurship are rare, hampered by barriers such as difficulty in gaining access to entrepreneurs in other countries, high expense, and lack of reliable secondary data.

In spite of these limitations, entrepreneurship research has been instrumental in clarifying and articulating many of the key contextual factors necessary to encourage entrepreneurial activity (Pennings 1980; Bruno and Tyebjee 1982). However, a separate but equally important question has not been addressed: At a national or regional level, is there an adequate supply of prospective entrepreneurs? That is, are there sufficient numbers of individuals with the requisite personal attitudes, aptitudes, values, perceptions, and ambitions to exploit opportunities and initiate business ventures? If not, then programs designed to encourage entrepreneurial activity within a given country or region may fall short of achieving the desired results.

In this paper, we investigate the relationship between national culture and two personal characteristics commonly associated with entrepreneurial potential: internal locus of control and innovativeness. Building on both cross-cultural management and entrepreneurship research, we develop and test hypotheses linking national culture to entrepreneurial traits using an international sample of nine countries. The results of this study provide the basis for assessing cross-national differences in potential for entrepreneurial activity. Implications for future cross-cultural research in entrepreneurship are also discussed.

**MOTIVATING NEW VENTURE FORMATION**

The connection between entrepreneurs and new venture formation is well established. Many authoritative definitions of entrepreneur actually include some reference to venture or enterprise creation. For example, Bygrave and Hofer (1991) define an entrepreneur as “...someone who perceives an opportunity and creates an organization to pursue it” (Bygrave and Hofer 1991, p. 14). In formulating national policy recommendations, Vesper defines entrepreneurship as “the creation of new independent businesses” (Vesper 1983, p. 1).

Although theoretical models of the new venture creation process differ in the assumptions and variables they encompass, they include common elements as well. Shapero (1975) for example, sees the prospective entrepreneur’s readiness to act as deter-
mined jointly by prior experience and the perception of current opportunities. According to Shapero, general readiness becomes a predisposition to initiate a venture when the individual experiences a precipitating event such as a layoff. However, this predisposition turns to action only when the individual perceives a suitable opportunity and can assemble the financial and other required resources from a supportive environment (Shapero 1975; Shapero and Sokol 1982; Krueger 1993; Martin 1984). Gartner (1985) defines the creation of a new venture as an interaction among four dimensions: personal characteristics of the entrepreneur (individual), competitive entry strategies (organization), push and pull factors (environment), and the actions taken by the entrepreneur to bring the enterprise into existence (process). Shapero and Sokol (1982) describe the entrepreneurial venture formation process as a life path change in which situational factors such as negative displacement (e.g., job termination), along with a positive pull from a partner, mentor, or customer, combined with a perception that entrepreneurship is both desirable and feasible, leads to the initiation of a new venture.

These and other venture creation process frameworks (e.g., Moore 1986; Krueger and Brazeal 1994), implicitly or explicitly suggest that the rate of new venture formation is contingent upon not only the economic, social, and political climate which facilitates and supports entrepreneurial activity, but also the availability of individuals predisposed to initiate new ventures.

**Entrepreneurial Potential**

In describing entrepreneurs, Joseph Schumpeter noted that these were the individuals who attempted to “... reform or revolutionize the pattern of production by exploiting an invention... or untried technical possibility for producing a new commodity or producing an old one in a new way... [This] requires aptitudes that are present in only a small fraction of the population...” (Schumpeter 1934, p. 132).

Schumpeter’s observation suggests that in addition to an entrepreneurial climate, the creation of new ventures and entrepreneurial activity depends upon the availability of prospective entrepreneurs, i.e. individuals possessing personality traits combined with personal circumstances which are likely to lead them to forming a new venture.

Motivations for becoming an entrepreneur have generally been categorized as either push/pull situational factors or personal characteristics. Research has shown that new venture initiation often occurs as a result of situational pushes or pulls that include frustration with present life-style, childhood, family environment, education, age, work history, role models, and support networks (Hisrich 1990; Martin 1984; Moore 1986; Krueger 1993; Scheinberg and MacMillan 1988). Some individuals are pushed into entrepreneurship by negative factors such as dissatisfaction with existing employment, loss of employment, and career setbacks. A number of empirical studies support this view and characterize entrepreneurs as misfits, rejects from society, or displaced individuals (Brockhaus 1980; Shapero 1975; Kets de Vries 1977; Gilad and Levine 1986). Alternatively, individuals may be pulled into entrepreneurship by positive factors such as early training and exposure to business which encourages the search for business opportunities (Krueger 1993; Mancuso 1973; Gilad and Levine 1986; Scheinberg and MacMillan 1988).

In addition to push and pull factors, personal characteristics (sometimes referred to as personality traits) also play a role in new venture initiation. Beginning with McClelland (1961), there has been a stream of entrepreneurship research which focuses on
the personal characteristics of the *actor* instead of the *act* of new venture creation. McClelland (1961) asserted that qualities associated with a high need for achievement, namely preferences for challenge, acceptance of personal responsibility for outcomes, and innovativeness, are defining characteristics of successful initiators of new businesses. McClelland’s work spurred a number of entrepreneurial traits studies to identify those characteristics which not only motivate individuals to initiate new ventures, but also contribute to venture success (Dunkelberg and Cooper 1982; Hornaday and Aboud 1971; Timmons 1978). Despite recent criticism of the traits approach (e.g., Brockhaus and Horwitz 1986; Carsrud, Olm, and Eddy 1986; Gartner 1988), there is a continued interest in determining what motivates some individuals to initiate a venture while others do not (Carland, Hoy, Boulton, and Carland 1984; Carland, Hoy, and Carland 1988; McClelland 1987; Solomon and Winslow 1988; Winslow and Solomon 1989). Furthermore, a number of recent empirical studies suggest that entrepreneurs can be distinguished from the general population on the basis of motivation (Spangler 1992; Johnson 1990), values (McGrath et al. 1992), and attitudes (Robinson, Stimpson, Huefner, and Hunt 1991).

Several theorists have argued that some personal characteristics or traits define the entrepreneur and are instrumental in motivating entrepreneurial behavior. Hisrich, in summarizing research on entrepreneurial behavior, notes that the entrepreneur is someone who demonstrates initiative and creative thinking, is able to organize social and economic mechanisms to turn resources and situations to practical account, and accepts risk and failure (Hirsch 1990). McClelland offers a similar set of defining traits to explain entrepreneurial behavior. These traits are high need for achievement, moderate risk-taking propensity, preference for energetic and/or novel activity, and assuming personal responsibility for successes or failure (McClelland 1961). Begley and Boyd found that entrepreneurs (founders) scored significantly higher than small business managers (non-founders) in need for achievement, risk-taking propensity, and tolerance of ambiguity (Begley and Boyd 1987). Brockhaus reviewed a number of trait studies and identified three consistent attributes associated with entrepreneurial behavior: need for achievement, internal locus of control, and a risk-taking propensity (Brockhaus 1982).

In this paper we examine two frequently cited personal traits associated with entrepreneurial potential, namely internal locus of control and innovativeness.

**Internal Locus of Control**

Although the search for the Heffalump (Kilby 1971) continues with no consensus on a clear, universally acceptable definition of the entrepreneur (Perry 1990), there is at least some general agreement that the entrepreneur, however defined, is a self-motivated individual who takes the initiative to start and build an enterprise relying primarily on self rather than others to formulate and implement his or her goals. Personal attributes such as independence, need for control, self reliance, confidence, initiative, and resourcefulness have been frequently cited as closely associated with entrepreneurial values and behavior (McClelland 1987; Hornaday and Aboud 1971; Solomon and Winslow 1988; Timmons 1978).

In psychology research, there is a long tradition of research related to perceived control and its effects on human behavior in various situations (Strickland 1989). Rotter (1966) made a significant contribution to this tradition with the development of a “locus of control” construct. According to Rotter, an individual perceives the outcome of an
event as being either within or beyond his or her personal control and understanding. An “internal” believes that one has influence over outcomes through ability, effort, or skills. On the other hand, “externals” believe that forces outside the control of the individual determine outcomes (Rotter 1966).

Rotter’s locus of control construct and later adaptations and refinements of his original I-E scale (Levenson 1974) have been widely used in studies related to organizational and managerial issues (Durant and Nord 1976; Kets de Vries 1977; Spector 1982; Jennings 1983). Not surprisingly, internal locus of control has also been one of the most studied psychological traits in entrepreneurship research (Perry 1990). An association between entrepreneurial behavior and an internal locus of control orientation has strong face validity. Entrepreneurs by most definitions are initiators, taking responsibility for their own welfare and not dependent on others (McClelland 1961). Furthermore, if one does not believe that the outcome of a business venture will be influenced by personal effort, then that individual is unlikely to risk exposure to the high penalties of failure. Since perception of both risk and ability to affect results are crucial to the new venture formation decision, it follows that prospective entrepreneurs are more likely to have an internal locus of control origination than an external one (Brockhaus 1982; Brockhaus and Horowitz 1986).

The identification of internal locus of control as a possible entrepreneurial trait spurred numerous empirical studies. Early studies during the 1970s showed generally positive findings (Jennings 1983). For example, Borland found in a sample of 375 business-school students that those students who expected to start a company someday had a stronger belief in internal control (Borland 1974). Brockhaus found that business students with entrepreneurial intentions tended to have an higher internal locus of control than those who did not have such intentions (Brockhaus 1975). Shapero administered Rotter’s I-E questionnaire to 134 Texan and Italian entrepreneurs and found that they scored significantly more internal than other groups tested (Shapero 1975). In a similar study, Pandey and Tewary (1979) found entrepreneurs to score higher on internal locus of control measures.

Investigation of the locus of control construct and entrepreneurs continued into the 1980s with mixed results (Ahmed 1985; Begley and Boyd 1987; Brockhaus 1980; Cromie and Johns 1983; Venkatapathy 1984). In most of these studies, locus of control was assessed with Rotter’s (1966) I-E scale. One possible explanation for inconclusive results is that as more recent locus of control researchers have shown (e.g., Collins 1974; Levenson 1974; Lefcourt 1981; Paulhus 1983), the original Rotter measure is multidimensional and not all of its dimensions appear to be equally plausible predictors of entrepreneurial behavior (Shaver and Scott 1991; Gatewood, Shaver, and Gartner 1995). More recent empirical studies using multidimensional measures of locus of control, however, generally support the claim that entrepreneurs are more internal than non-entrepreneurs. For example, Bonnett and Furnham (1991) used a three-dimensional (internal, external, and chance) economic locus of control scale and found a group of student entrepreneurs to be more internal than a control group. Similarly, Levin and Leginsky (1990) used Levenson’s (1974) IPC scale and found that entrepreneurial social workers tended to exhibit a greater internal locus of control than the general population.

An internal locus of control orientation can also been viewed as a prerequisite for action. Shapero (1982) and Krueger (1993) proposed that propensity to act, a disposition to act upon one’s decisions, is an essential element of the new venture initiation process. They argue that an individual who perceives an entrepreneurial opportunity to be both
desirable and feasible may not actually initiate a new venture unless the individual is predisposed psychologically to actually act upon his or her decision (Shapero 1975; Krueger 1993; Krueger and Brazeal 1994). Furthermore, according to Shapero, the propensity to act on an opportunity depends on one's perception of control (Shapero 1975). Thus conceptually at least, an internal locus of control orientation (ILOC) increases the likelihood that a potential entrepreneur will take action to carry out his/her plans.

Innovativeness

Innovation is the “... process that turns an invention ... into a marketable product” (Gabor 1970). Innovation is therefore more than invention; it also involves the commercialization of ideas, implementation, and the modification of existing products, systems and resources (Bird 1989, p. 39).

Innovative activity is explicit in Schumpeter’s description of the entrepreneur. Schumpeter (1934) defined the role of the entrepreneur as a catalyst of change, seeing the entrepreneur as “... an idea man and a man of action ... instrumental in discovering new opportunities” (Schumpeter 1965). Drucker further elaborated the innovator role of the entrepreneur and described innovation as “the specific tool of entrepreneurs ... [and] ... the means by which they exploit change ...” (Drucker 1985). In differentiating the entrepreneur from the small business owner, Carland, Hoy, Boulton, and Carland (1984) argue that innovative strategic practices are necessary for new ventures to be profitable and grow. In making this distinction, they define the entrepreneur as “... an individual who establishes and manages a business for the principal purposes of profit and growth ... [and] ... is characterized principally by innovative behavior ...” (Carland et al. 1984, p. 358).

Assigning the role of innovator to the entrepreneur implies that successful entrepreneurs adopt and implement competitive strategies such as introducing new products and services, new methods of production, opening new markets or sources of supply, or even reorganizing an entire industry (Bird 1989; Carland et al. 1984). However, prior to implementation, the potential entrepreneur must be able to effectively formulate such strategies suggesting the possession of personal characteristics which reflect creativity and innovativeness.

There appears to be strong empirical evidence to support the claim that entrepreneurs, particularly those successful at growing an enterprise, are more innovative than non-entrepreneurs. For example, research by Sexton and Bowman-Upton (1986) shows that entrepreneurship students tend to be more innovative than other business administration students. Carland, Carland, Hoy, and Boulton (1988) found that entrepreneurs who establish and manage a business for the principal purposes of profit and growth have a higher preference for innovation than other small business owners. Carland and Carland (1991) found that both male and female entrepreneurs have significantly higher levels of innovative preference than their managerial counterparts. Buttner and Gryskiewicz (1993) found entrepreneurs scored higher on Kirton’s adaption-innovation scale (Kirton 1976) than general managers of large organizations. Also using Kirton’s adaption-innovation scale, Goldsmith and Kerr (1991) found that entrepreneurship students were more innovative than other business students. Smith and Miner (1985) found that founders of fast-growing firms scored significantly higher in personal innovation than individuals holding managerial positions. Tuunanen and Hyrsky (1997) found that in both Finnish and American samples of business owners, those who report their pri-
mary objectives to be profit and growth scored higher on Jackson’s innovativeness measure than did those reporting family income as their primary goal. Furthermore, for the American sample at least, founders scored higher than non-founders. (Tuunanen and Hyrsky 1997).

Other studies have shown that innovation is a primary motive to start a business. For example, Shane, Kolvereid, and Westhead (1991) report that the opportunity to innovative and be in the forefront of new technology was frequently given as a reason for starting a business. The opportunity to innovate is also frequently cited in international studies as a motive for starting an enterprise (Scheinberg and MacMillan 1988; Blaise, Toulouse, and Clement 1990).

It is apparent from these and other studies that entrepreneurial traits, particularly locus of control, have been studied extensively in the United States. However, cross-cultural studies of entrepreneurial traits and studies in non-U.S. contexts are rare and in most cases limited to comparisons between one or two countries or cultures (e.g., McGrath, MacMillan, and Scheinberg 1992; Tuunanen 1997; Koiranen, Hyrsky, and Tuunanen 1997; Tuunanen and Hyrsky 1997). In the cases of locus of control and innovativeness, to our knowledge there have been no comprehensive investigations to determine whether these particular traits vary across a wide spectrum of cultures. The question remains: do entrepreneurial traits vary systematically across cultures and if so why? Furthermore, if differences across culture do exist, what are the new venture formation implications? In the following section we examine the role of culture in the development of entrepreneurial values and formulate hypotheses relating national culture to the prevalence of individuals with internal locus of control and innovative orientations.

CULTURE AND ENTREPRENEURIAL TRAITS

Barnouw (1979) defines culture as “... the configuration of ... stereotyped patterns of learned behavior which are handed down from one generation to the next through the means of language and imitation ...” (p. 5). Kroeber and Parson’s (1958, p. 583) earlier cross-disciplinary definition of culture included “... patterns of values, ideas, and other symbolic-meaningful systems as factors in the shaping of human behavior ...” Hofstede (1980) refers to culture as “the collective programming of the mind which distinguishes the members of one human group from another ... [and] includes systems of values” (p. 25).

Values and norms are powerful forces for controlling and directing human behavior. Erez and Earley (1993) note that culture shapes the cognitive schema which ascribe meaning and values to motivational variables and guide choices, commitments, and standards of behavior. Further, since values are typically determined early in life (Hofstede 1980; Barnouw 1979), they tend to be “programmed” into individuals resulting in behavior patterns which are consistent with the cultural context and endure over time (Hofstede 1980).

Thus culture, as the underlying system of values peculiar to a specific group or society, shapes the development of certain personality traits and motivates individuals in a society to engage in behaviors that may not be as prevalent in other societies. Entrepreneurial activity (i.e., new venture creation) may be one of these behaviors which varies across countries due to differences in cultural values and beliefs. Clearly many factors underlying entrepreneurial behavior are common across cultures (e.g., economic incentives can motivate action in all cultures). However, since culture reinforces certain per-
sonal characteristics and penalizes others, we would expect some cultures to be more
closely aligned with an entrepreneurial orientation than others. Huisman (1985) for
example noted wide variance in entrepreneurial activity across cultures and concluded
that cultural values influence entrepreneurial behavior. McGrath et al. (1992) reached a
similar conclusion in a 10-country study of entrepreneurs and non-entrepreneurs. They
found that entrepreneurs differed significantly from their career professional counter-
part in culture-based values and beliefs such as “Success is owning your own company,”
“Rewards should be based on merit,” and “Equality is everyone’s right.” (McGrath et

Dimensions of Culture

Using the results of his 40-country study of 88,000 employees and managers of a single
U.S. multinational (IBM), Geert Hofstede (1980) constructed four distinct dimensions
of culture as an underlying framework to identify and explain differences in cultural pat-
terns observed across countries. Hofstede’s power distance, uncertainty avoidance, indi-
vidualism and masculinity dimensions define a specific set of values which describe some
aspect of culture and human activities. Although Hofstede did not specify the relation-
ship between culture and entrepreneurial activity per se, his culture dimensions are use-
ful in identifying the key elements of culture related to entrepreneurial orientation.

In the following sections, we examine two of Hofstede’s culture dimensions, indi-
vidualism and uncertainty avoidance, and offer hypotheses linking these dimensions to
the prevalence of individuals exhibiting innovativeness and internal locus of control ori-
entations.

Individualism

Individualism pertains to societies in which social ties and commitments are loose.
Everyone is expected to look after himself or herself and the immediate family. Collect-
vivism, at the opposite pole from individualism, pertains to societies in which people
from birth onwards are integrated into strong, cohesive ingroups which throughout a
lifetime continue to protect them in exchange for unquestioning loyalty (Hofstede 1991,
p. 51).

In individualistic cultures, social identity is based on individual contribution. Basic
social values emphasize personal initiative and achievement. Autonomy, variety, plea-
sure, and personal financial security take precedent over group loyalty. As a result, in
highly individualistic countries, there is greater employment mobility since individuals
are expected to look after their own interests (Hofstede 1980, p. 235).

In collectivistic cultures, people are born into extended families or clans which pro-
tect them in exchange for loyalty. Social identity is based on group membership. There
is greater emphasis on belonging vis-à-vis personal initiative. Thus individual initiative
is not highly valued and deviance in opinion or behavior is typically punished. In collec-
tivistic cultures, group decisions are considered to be superior to individual decisions.
(Hofstede 1980, p. 235).

As noted earlier, entrepreneurs are frequently characterized as exhibiting an internal
locus of control. As “internals,” entrepreneurs believe in their own abilities to
achieve and give little credence to external forces such as destiny, luck, or powerful
others (Rotter 1966). In highly individualistic countries (e.g., United States, United
Kingdom, Australia), individual freedom of action and independence are highly valued. Therefore, entrepreneurs who exhibit high levels of self-confidence, self-reliance, and bravado are admired and encouraged.

In a recent study, Busenitz and Barney (1997) showed that entrepreneurs’ decision-making styles differ from that of managers in a large organizations in how they perceive risk. Specifically they found that entrepreneurs tend to be more overconfident than managers in making decisions in situations where information is limited or there is a high degree of outcome uncertainty (Busenitz and Barney 1997). Such findings support the notion that entrepreneurs tend to discount risk in business situations and perceive themselves as “in-control” of their ventures. Since individualistic cultures are more supportive of individual action and more tolerant of independent action than are collectivistic cultures, we would expect that an internal locus of control orientation would be less prevalent in collectivistic cultures than in individualistic cultures.

A review of cross-cultural studies of locus of control suggests a considerable amount of empirical support for expecting differences in the prevalence of internals (and hence potential entrepreneurs) across cultures. For example, using Rotter’s I-E scale, Parsons and Scheider (1974) found that U.S. students were significantly more internal than Japanese students. Reitz and Groff (1974) found U.S. workers to be more internal than Mexican workers on Rotter’s leadership/success subscale and more internal than Japanese and Thai workers on the respect, politics, and luck/fate subscales. Several studies using the IPC scales (Levenson 1974) also found significant differences in locus of control orientation between some of the more collectivistic cultures and the United States. Cole and Cole (1974) for example, found U.S. male business students to have a higher internal IPC score than Mexican male business students. Mahler (1974) found that Japanese university students were less internal than U.S. university students. In a rare study comparing entrepreneurs across cultures, Kaufmann, Welsh, and Bushmarin (1995) found that Russian entrepreneurs scored significantly lower on the internal IPC scale than did U.S. entrepreneurs sampled in an earlier study by Rupke (1978).

The formation of successful new ventures clearly requires initiative on the part of the founder or the founding team. Whether founded by an individual or small team, the business initiators must be independent, self-reliant, and self-confident. Individualistic cultures tend to reinforce and reward independent action and initiative; collectivistic cultures reward these actions less. Thus,

\[ H1: \text{An internal locus of control orientation is more prevalent in individualistic cultures than in collectivistic cultures.} \]

**Uncertainty Avoidance**

Hofstede defines *uncertainty avoidance* as “. . . the extent to which the members of a culture feel threatened by uncertain or unknown situations” (Hofstede 1991, p. 113). According to Hofstede, strategies for coping with uncertainty are rooted in culture and reinforced through basic institutions such as family, school, and state (Hofstede 1980). In low uncertainty avoidance cultures, members are expected to cope with uncertainty as best they can. In high uncertainty avoidance cultures, structures are established which minimize the level of uncertainty faced by individual members.

In low uncertainty avoidance cultures, the inherent uncertainty of life is more easily
accepted and each day is taken as it comes. It is believed that conflict and competition can be controlled within the rules of “fair play” and used constructively. Social deviants are not perceived as threatening, hence there is a greater tolerance for creative or novel behavior. In low uncertainty avoidance cultures, there is more willingness to take risks, and achievement is often recognized in terms of pioneering effort (Hofstede 1980, p. 184).

In high uncertainty avoidance cultures on the other hand, it is believed that conflict and competition unleashes destructive aggression and should be avoided. Deviant persons and ideas are considered dangerous; hence a lack of tolerance for anyone or anything that is perceived as “different.” In high uncertainty avoidance cultures, younger people, prone to antiestablishment attitudes and behavior, are regarded with suspicion. There is more concern with security in life, and achievement is defined in terms of security. Hofstede also found that in high uncertainty avoidance societies, there is a greater fear of failure, a lower willingness to take risks, lower levels of ambition, and lower tolerance for ambiguity (Hofstede 1980, p. 184).

As noted earlier, innovativeness has long been associated with entrepreneurial behavior and even regarded by some as a defining element of the entrepreneurial role (Schumpeter 1934; Carland, et. al 1984). Creativity and innovativeness have also been linked to a high tolerance for ambiguity, another common characteristic of entrepreneurs (Schere 1982; Begley and Boyd 1987). Entrepreneurs also tend to have an optimistic bias and evaluate uncertain situations as more favorable than the facts justify (McClelland 1987). The tendency to discount external constraints is also considered to be a key attribute of creative individuals (Whiting 1988). Since creative and entrepreneurial behavior is by definition deviant in a social context, some researchers even go so far as to suggest that successful entrepreneurs may be mildly sociopathic (Winslow and Solomon 1989).

Since low uncertainty avoidance cultures are more accepting of non-traditional behaviors, it follows that entrepreneurs in these contexts enjoy greater freedom and legitimacy than their counterparts in high uncertainty avoidance cultures where the “deviance” of entrepreneurs would be viewed with suspicion. In support of this contention, Tuunanen et al. (1997) found that U.S. entrepreneurs had somewhat higher preferences for innovation than their counterparts in Finland, a country with a relatively high uncertainty avoidance culture compared to the United States (Hofstede 1980). In a cross-national study of innovation rates, Shane (1992) found that in terms of the number of trademarks granted to nationals of 33 different countries, per capita rate of innovation was lower in uncertainty avoiding countries compared to uncertainty accepting countries.

H2: An innovative orientation is more prevalent in low uncertainty avoidance cultures than in high uncertainty avoidance cultures.

**Entrepreneurial Orientation and Culture**

No single trait or characteristic defines the entrepreneur, nor does it allow one to predict entrepreneurial behavior. It is a configuration of traits that separates the potential entrepreneur from those who are not predisposed or motivated to engage in new venture formation. Neither internal locus of control or innovativeness alone is sufficient to explain entrepreneurial motivation nor to define what we call an entrepreneurial orienta-
tion: a predisposition which is likely to lead to behavior associated with entrepreneurial activity.¹

Given the theoretical and empirical support as outlined above, we would expect that an entrepreneurial orientation should include as a minimum, both internal locus of control and innovativeness. Entrepreneurial orientation implies an individual who is self-reliant, self-confident, with strong determination and perseverance to initiate and grow an enterprise. Thus, individuals with both an internal locus of control and innovative orientation should appear more frequently in highly individualistic cultures which support the strongly independent and persevering element of entrepreneurial behavior and at the same time support creativity and innovative problem-solving to deal with an uncertain and ambiguous world. As an extension of H1 and H2, we expect that countries which are both low in uncertainty avoidance and highly individualistic would yield the greatest number of individuals with an entrepreneurial orientation.

H3: An entrepreneurial orientation (i.e., internal locus of control combined with innovativeness) is more prevalent in individualistic, low uncertainty avoidance cultures than in collectivistic, high uncertainty avoidance cultures.

METHODS

Survey Administration

The sample used for this study was drawn from a large data set containing responses to a survey of third- and fourth-year students at 25 universities in 15 countries. The instrument administered to the students surveyed their attitudes and perceptions about free-markets, competition, and the contribution of entrepreneurs to economic development. It also contained items designed to measure locus of control and innovative orientations. Respondents were additionally instructed to provide specific biographical background information so they could be categorized by age, gender, and national origin.

The instrument was pre-tested on approximately 400 undergraduate business students at an American university. As a result of this pre-test, several of the questions were modified to reduce or eliminate ambiguity. Subsequently, during 1996 the questionnaire was distributed to students studying business, economics, or engineering in a variety of different universities worldwide. Questionnaires were administered in a classroom setting by local professors who agreed to participate in the project and administer the surveys in exchange for access to the data set.

University students were selected as subjects for this study for several reasons. Today’s university students, we believe, represent a significant share of the pool of potential entrepreneurs in both the developed and developing countries. As the demands of technology and global competition increases, the need for university-trained entrepreneurs will becomes more evident, and success in business will increasingly be dependent

¹The term entrepreneurial orientation has been used by other researchers in the context of firm behavior. For example, Covin and Slevin (1989) referred to entrepreneurial orientation as a strategic posture of the firm. Covin and Slevin (1988) also used the term to refer to a top management team’s decision-making style. In later work (e.g. Covin and Slevin 1991), these authors abandoned the term entrepreneurial orientation in favor of “entrepreneurial posture.” More recently, Lumpkin and Dess (1996) used the term as a construct representing the extent to which a firm’s strategic profile contains autonomy, innovativeness, risk taking, proactivity, and competitive aggressiveness. We use the term entrepreneurial orientation as a label for a set of personal traits associated with entrepreneurial potential. Our use of the term should not to be confused with a firm-level attribute as found in Covin and Slevin or Lumpkin and Dess.
upon the founder’s education and training. Furthermore, sampling only students in business, economics, and engineering enhances cross-national comparability by effectively controlling for important variables such as literacy, work experience, age, and education. Finally, as a matter of practicality, student subjects are generally convenient, accessible, and through the support of administering professors, it was possible to maintain control over the testing environment.

**Translation**

In the United States, Canada, Ireland, and at schools in European countries where the students’ command of English was highly proficient, the survey was administered in English. In the case of the Latin American countries, the survey instrument was first translated into Spanish by a bilingual native Spanish speaker and then backtranslated into English by a bilingual native English speaker. For European countries where translations were required, (i.e., Croatia, the Czech Republic, Slovenia, Germany), the instrument was translated by bilingual professors at the local institutions where the instrument was administered.

**Measures**

The survey instrument was composed of 62 items. Respondents were asked to indicate the extent to which they agreed or disagreed with each item by choosing one of five responses: (A) strongly agree, (B) agree, (C) neither agree or disagree, (D) disagree, or (E) strongly disagree.

Of the 62 items, 18 were used to construct scales for innovativeness (10 items) and locus of control (8 items). Items for the innovativeness scale were adapted from the Jackson Personality Inventory (Jackson 1994) while items used for the locus of control scale were adapted from Rotter’s I-E scale (Rotter 1966). Both scales were subjected to reliability testing using data collected in this nine-country study. Reliability test results indicate that Cronbach’s alpha scores were in an acceptable range for both scales with minimal variance across country samples. For example, alpha scores ranged from 0.82 (Canada) to 0.66 (China) for the innovativeness scale and from 0.81 (Canada) to 0.53 (Slovenia) for the internal locus of control scale. Both scales were also determined to be unidimensional based on results obtained from principal component analysis.

**Innovativeness**

The Jackson Personality Inventory Manual (JPI), which defines innovativeness as a tendency to be creative in thought and action, was used to capture this construct as innovation, creativity, and initiative have been consistently identified as one of the enduring characteristics of entrepreneurs. (McClelland 1987; Fernald and Solomon 1987; Hornaday and Aboud 1971; Timmons 1978).

Adjectives on the instrument used to describe entrepreneurs which highly correlate with innovativeness include imaginative, inventive, enterprising, original, resourceful, and farsighted (Jackson 1994). A high score on the JPI innovativeness scale indicates a preference for novel solutions to problems and an appreciation for original ideas. For this study, 8 items were adapted from the JPI innovativeness scale. Typical of these are
statements such as “I often surprise people with my novel ideas” and “I like to experiment with various ways of doing the same thing.”

Locus of Control
A modified Rotter I-E Scale was used in this study to measure internal locus of control (Rotter 1966). This scale is designed to measure the respondent’s perceived ability to influence events in his or her own life. Internal persons believe that fate and fortune is within their own personal control. In contrast, external persons believe that their lives are controlled by external forces such as destiny, luck, or powerful others (Begley and Boyd 1987). Ten items were adapted for this purpose. Typical of these are statements such as “My life is determined by my own actions” and “When I get what I want, it is usually because I worked hard for it.”

To minimize the effect of response bias in which some respondents tend to give more extreme responses than others, innovativeness and locus of control scores were converted from a numeric to a binary score (high or low). Scores ranged from a maximum of 40 to a minimum of 8 for innovativeness and a maximum of 60 to a minimum of 10 for internal locus of control. A frequency distribution of scores for both measures was used to determine a suitable breakpoint value which separated the upper 50 percentile from the lower 50 percentile. In this manner, each respondent’s score was converted from a numeric score to a high/low value.

Entrepreneurial Orientation
For analysis purposes, innovativeness and internal locus of control were treated as two essential elements of an entrepreneurial predisposition. Thus individuals with an entrepreneurial orientation (EO) are defined as those who are at the same time innovative and have an internal locus of control orientation. In operationalizing this EO construct, if a respondent were categorized as HIGH innovativeness and HIGH internal locus of control, then that respondent would also be designated as HIGH entrepreneurial orientation. If however, the respondent was categorized as LOW innovativeness, LOW internal locus of control, or both, then that respondent would be categorized as LOW entrepreneurial orientation. Using this scheme, 378 of the 1,790 respondents (21%) were categorized as HIGH EO, and 1,412 (79%) were categorized as LOW EO.

Culture
Student respondents were asked a series of background questions to determine their nationality. If a student indicated that he or she was not a native or a long time resident of the country in which their university was located, then that response was eliminated from the data set. The remaining responses were then coded by nationality (i.e., Canada, Ireland, United States, etc.) based on the university’s location.

Of the 15 countries surveyed, only nine were in the Hofstede 1980 study thereby limiting the culture analysis to the United States, Croatia and Slovenia (former Yugoslavia), Canada, Ireland, Belgium, Germany, Singapore, and China (PRC). Each of these countries was scored using Hofstede’s cultural indices denoted as “UAI” (uncertainty avoidance) and “IDV” (individualism). Hofstede did not obtain culture data for the PRC directly but did score both Taiwan and Hong Kong. Based on the results of a study
TABLE 1 Descriptive Statistics and Correlations

<table>
<thead>
<tr>
<th>Variables</th>
<th>Means</th>
<th>Standard Deviations</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gender\textsuperscript{a}</td>
<td>0.53</td>
<td>0.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Individualism\textsuperscript{b}</td>
<td>54.25</td>
<td>30.75</td>
<td>0.0991***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Uncertainty Avoidance\textsuperscript{c}</td>
<td>56.11</td>
<td>22.83</td>
<td>0.0641**</td>
<td>-0.4601***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Innovativeness\textsuperscript{d}</td>
<td>0.41</td>
<td>0.49</td>
<td>0.1287***</td>
<td>0.0576*</td>
<td>0.0272</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Locus of Control\textsuperscript{e}</td>
<td>0.41</td>
<td>0.49</td>
<td>0.0367</td>
<td>0.2451***</td>
<td>-0.0946***</td>
<td>0.2011***</td>
<td></td>
</tr>
<tr>
<td>6. Entrepreneurial Orientation\textsuperscript{f}</td>
<td>0.22</td>
<td>0.41</td>
<td>0.0993***</td>
<td>0.1645***</td>
<td>-0.0414</td>
<td>0.6299***</td>
<td>0.6318***</td>
</tr>
</tbody>
</table>

\textsuperscript{a} N = 1790; \textsuperscript{b} Male = 1; Female = 0; \textsuperscript{c} Hofstede 1980; \textsuperscript{d} Hofstede 1980; \textsuperscript{e} High Innovativeness = 1; Low Innovativeness = 0; \textsuperscript{f} Internal LOC = 1; External LOC = 0; \textsuperscript{g} Innovativeness x Locus of Control; *** p < 0.001; ** p < 0.01; * p < 0.05.

by McGrath, MacMillan, Yang and Tsai (1992) in which they concluded that 50 years of ideological pressure had little effect on the basic collectivist values and attitudes among mainland Chinese, we used Hofstede’s Taiwan and Kong Hong data to provide an estimate of culture dimension scores for the Peoples Republic of China.

RESULTS

Table 1 provides descriptive statistics and zero order correlations for each of the variables. Gender is modeled as a dichotomous variable with “1” representing male and “0” representing female. As shown in Table 1, the mean value for gender is 0.53 indicating 53% of the sample is male and 47% of the sample is female. Innovativeness and locus of control are also dichotomous variables with “1” representing high innovativeness and internal locus of control and “0” representing low innovativeness and external locus of control respectively. Entrepreneurial orientation is a constructed dichotomous variable which equals “1” when both innovativeness and locus of control are “1” and “0” when either innovativeness or locus of control is “0.” As the mean values in Table 1 indicate, 41% of the sample have an innovative orientation, 41% have an internal locus of control orientation, and 22% have both. This relatively low occurrence of an entrepreneurial orientation (i.e., high innovativeness plus ILOC) in our sample is consistent with the expectation that entrepreneurial potential is a relatively rare characteristic.

Multivariate logistic regression analysis was used to test the three hypotheses as to the effect of culture on the likelihood of (1) an internal locus of control orientation, (2) an innovative orientation, or (3) a combined ILOC/innovative orientation defined as entrepreneurial orientation. Using the SAS LOGISTIC procedure (SAS Institute 1989), maximum likelihood estimates for each independent variable included in the model are generated and various measures of model fit such as the -2 log likelihood statistic are reported. Logistic regression is similar to least-squares regression except it is most appropriately used when the dependent variable is binary, i.e., 1 or 0, yes or no, high or low.

The results of the logistic regression analysis are summarized as Table 2. Gender was included as a control variable in all regression models tested.

Results of regression analysis provide support for Hypothesis 1 and Hypothesis 3, but not for Hypothesis 2. While controlling for gender, the sign of the coefficient for the individualism-collectivism dimension of culture is positive and significant at the 0.99 confidence level supporting the claim that an innovative orientation is more likely in
TABLE 2 Logistic Regression Analysis: Effects of Culture and Gender on Locus on Control and Innovativeness

<table>
<thead>
<tr>
<th>H1 Intercept</th>
<th>H2 Innovativeness</th>
<th>H3 Entrepreneurial Orientation (Innovativeness + Internal LOC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>1.3265***</td>
<td>0.8363***</td>
</tr>
<tr>
<td>(Gender)</td>
<td>(0.1172)</td>
<td>(0.1482)</td>
</tr>
<tr>
<td>(Male = 1, Female = 0)</td>
<td>0.0710</td>
<td>0.5787***</td>
</tr>
<tr>
<td>(Individualism)</td>
<td>0.0166***</td>
<td>0.0131***</td>
</tr>
<tr>
<td>(Uncertainty Avoidance)</td>
<td>0.0017</td>
<td>−0.0055*</td>
</tr>
<tr>
<td>(Entrepreneur Supportive)</td>
<td>0.0002***</td>
<td></td>
</tr>
<tr>
<td>(Low UA × IDV)</td>
<td>(0.0000)</td>
<td></td>
</tr>
</tbody>
</table>

Std. Errors in Parentheses; ** *p < 0.001; * *p < 0.01; * p < 0.05.

Individualistic cultures and less likely in collectivistic cultures (Hypothesis 1). However, although the sign of the coefficient for uncertainty avoidance was the predicted direction for Hypothesis 2 (i.e., negative), this result is not statistically significant indicating no difference in the likelihood of an innovative orientation between low and high uncertainty avoidance cultures. The effect of gender on innovativeness was, however, significant indicating that an innovative orientation is more likely among males in the sample than females. On the other hand, there was no significant difference between males and females in the likelihood of an internal locus of control orientation.

Hypothesis 3, which predicts that an entrepreneurial orientation (internal locus of control combined with innovativeness) is more likely in low uncertainty avoidance and individualistic cultures, was tested using three different regression models. First, the effect of individualism on the likelihood of entrepreneurial orientation was tested alone. Similarly, the effect of uncertainty avoidance on the likelihood of entrepreneurial orientation was tested. In the third model, a combined uncertainty avoidance/individualism culture scale was constructed by computing the product of a country’s uncertainty avoidance score and individualism score. Because of its hypothesized relationship with entrepreneurial potential, this combined culture scale is labeled “entrepreneurship supportive.” All three regression models tested provide support for Hypothesis 3. As shown in Table 1, the likelihood of an entrepreneurial orientation is (a) greater in individualistic cultures, (b) greater in low uncertainty avoidance cultures, and (c) greatest in cultures which are at the same time low uncertainty avoidance and highly individualistic.

**DISCUSSION**

The results of this exploratory study support the proposition that some cultures are more conducive for entrepreneurship than others. As hypothesized, individualism was found to increase the likelihood of an internal locus of control orientation supporting the argument that individualistic cultures foster strong entrepreneurial values that promote self-reliance and independent action while collectivistic cultures do not. Furthermore, there was support for the hypothesis that an entrepreneurial orientation, defined as internal locus of control combined with innovativeness, is more likely in individualistic, low uncertainty avoidance cultures than in collectivistic, high uncertainty avoidance cultures.
However, contrary to Hypothesis 2, an innovativeness orientation is by itself no more likely in a low uncertainty avoidance culture than in a high uncertainty avoidance culture.

The lack of support for Hypothesis 2, suggesting that prevalence of innovativeness may not be associated with any particular culture or country, is an interesting finding and requires closer examination. Our data show that innovativeness (measured using the Jackson Personality Inventory scale) is equally likely in low uncertainty avoidance cultures (e.g., Anglo-American) as in high uncertainty avoidance cultures (e.g., Asian). The explanation for this finding may lie in how innovative orientation is measured.

Although we found that an entrepreneurial orientation varies in frequency across cultures, we suspect that the propensity to think creatively, which is what the JPI scale measures, may in fact be a universal trait and not shaped by culture. This is to say that creativity and creative thinkers are equally prevalent in a variety of cultural contexts. However, innovativeness, as it relates specifically to the new venture creation process and the problems that entrepreneurs must solve, may be another matter.

As other researchers have demonstrated, entrepreneurs differ from non-entrepreneurs in their decision-making styles. Buttner and Gryskiewicz (1993), for example, found that entrepreneurs have a more innovative problem-solving style than their managerial counterparts in larger U.S. organizations. Similarly, Goldsmith and Kerr (1991) found that entrepreneurship students used a more innovative problem-solving style than general business students. Both studies used the Kirton Adaption-Innovation Inventory instrument to measure stylistic differences in problem solving and decision making with “adaptation” at one end of a continuum and “innovation” at the other (Kirton 1976). According to Kirton, adaptors try to do things “better” through incremental improvement while innovators try to do things “differently” by changing the way things are (Kirton 1976). What we suspect is that decision-making and problem-solving styles vary in frequency across cultures rather than creative thinking per se. If that is the case, then we would expect to find adaptive styles to be more prevalent in high uncertainty avoidance cultures (e.g., Japan) and innovative styles to be more prevalent in low uncertainty avoidance cultures (e.g., the United States).

Despite the inconclusive results on innovativeness, the overall positive findings of this study (i.e. support for Hypothesis 1 and Hypothesis 3) suggest that culture is an important variable in determining entrepreneurial potential at the national or regional level. Culture, it appears, may condition potential for entrepreneurship, generating differences across national and regional boundaries. As we have demonstrated, some cultures, particularly cultures which are low uncertainty avoidance and individualistic appear to be more supportive of entrepreneurs than are other cultural configurations. One tentative conclusion is that a “supportive” culture increases, ceteris paribus, the entrepreneurial potential of a country.

Krueger and Brazeal (1994) noted that support from political, social, and business leaders is critical to the encouragement of entrepreneurial activity. This support is typically provided in the form of incentive programs or inducements to encourage the founding of new enterprises. But our research suggests that it is equally important that there be a supportive culture to cultivate the mind and character of the potential entrepreneur. To be motivated to act, potential entrepreneurs must perceive themselves as capable and psychologically equipped to face the challenges of a global, competitive marketplace.

Traits such as internal locus of control and innovativeness are not necessarily immutable. As entrepreneurship educators are found of saying “entrepreneurs are made, not
This statement implies that entrepreneurship can be taught and an individual’s self-perception and potential for entrepreneurship can be enhanced. For example, Krueger and Brazeal (1994) note that research suggests we can train individuals to behave more autonomously. Such training would be aimed at enhancing a student’s perceived self-efficacy at specific tasks or competencies critical to launching and maintaining a successful venture.

Clearly business education can play an important role in this regard by providing not only the technical tools of business (accounting, marketing, finance, etc.), but also helping students develop the necessary skills for self-management and coping with adversity and uncertainty (Krueger and Brazeal 1994).

**Entrepreneurial Traits Research**

The use of personal characteristics such as locus of control and innovativeness in entrepreneurship studies has been questioned (Gartner 1988). Much of the criticism of the traits approach to the study of entrepreneurship is based on the implied assumption that traits are acquired at birth or an early age. The use of the term “personality” in many traits studies also implies that such characteristics are immutable and unaffected by experience or circumstance. However, characteristics such as locus of control and innovativeness are not necessarily imprinted at birth or an early age and may be acquired at a later time due to experiences in the work place, education, exposure to role models, parents, and social setting (culture) which shape values and beliefs.

Criticism of the entrepreneurial traits research is also based on a lack of significant empirical findings to support the claim that entrepreneurs are psychologically “different” from the general population. The application of certain psychometric tests which measure need for achievement and risk-taking propensity for example, have generally failed to discriminate between entrepreneurs and professional business managers (Brockhaus 1982; Gartner 1985). However, this failure to confirm empirically the psychological differences between practicing entrepreneurs and non-entrepreneurs may be misleading. Clearly not all those predisposed actually become entrepreneurs. Other factors such as push/pull and the environment also affect the probability that one will initiate a venture. It is therefore reasonable to expect that a significant portion of the non-entrepreneur population possess entrepreneurial tendencies as well. In other words, having entrepreneurial values, attitudes, and perceptions is simply a precondition for entrepreneurial behavior and not to be confused with the act itself (McClelland 1961).

In this study the concern is with potential entrepreneurs, not practicing entrepreneurs. Therefore it was appropriate to investigate those characteristics, whether learned or innate, for which there is a theoretical basis for predicting an increase in the likelihood of venture initiation.

**Entrepreneurial Potential and New Venture Creation**

The bulk of entrepreneurship research and theorizing about factors which stimulate new venture creation would seem to suggest that all that is needed is a supportive infrastructure or economic incentives to provide the motivation to initiate new ventures. However, as we have argued, an adequate pool of entrepreneurially oriented individuals must also be available. Since the culture of a country influences the values, attitudes, and beliefs of its people, we can expect variety in the distribution of individuals with
entrepreneurial potential across cultural contexts. Extending this logic leads to the proposition that the greater the frequency of the entrepreneurial orientation among the population of a country, the greater the stock of potential entrepreneurs, and hence (ceteris paribus) the higher the rate of new venture formation.

**Study Limitations**

As noted, the study sample consists exclusively of third- and fourth-year university students. This sampling approach has the advantage of forcing homogeneity of respondents across countries and thereby eliminating the need to control for critical demographic variables such as age, education, and experience. However, at the same time we recognize the possibility that a lack of uniformity in the demographic composition of student bodies across countries might be a source of sample bias.

This study is also limited by the number and type of countries selected. Although every attempt was made to sample a wide range of countries based on region, countries were not selected with a goal to achieve maximum variance across cultural dimensions. As a result, it was not possible to account for the independent effect of each culture dimension. In recognizing this limitation, we are in the process of collecting data from additional countries (e.g., Mexico, Australia, Italy, South Africa, and Turkey).

In retrospect we recognize that the choice of measures for innovativeness and control orientation may be another limitation of this pilot study. In future studies, we plan to incorporate alternative measures of innovativeness (e.g., Kirton 1973) and control (e.g., Burger 1985; Palhus 1983).

**Future International Entrepreneurship Research**

This study advances entrepreneurship research by demonstrating that certain characteristics associated with entrepreneurial potential are more prevalent in some cultures and less prevalent in others. These findings highlight the need for the development of entrepreneurial profiles which recognize both commonality and differences across cultures. Empirically this means a call for finer grained studies and inductive research in different contexts to determine the traits profiles of potential entrepreneurs in different cultures. Such efforts should provide a baseline profile from which deviations can be assessed and the impact of culture on entrepreneurship more thoroughly examined.

The observed differences between males and females in this study also highlights the need for a more thorough examination of gender effects across a variety of cultural, economic, and political context. Although innovativeness is more frequently observed among the males in this sample, there were no significant differences among men and women in locus of control orientation. This finding of differences between men and women in the likelihood of an entrepreneurial orientation suggests systematic gender differences in motives leading to new venture initiation (Birley 1989; Bowen and Hisrich 1986; Fischer, Reuber, and Dyke 1993). Given that the rate of new business start-ups by women is increasing rapidly in many countries and most of the literature on entrepreneurship was derived by studying male entrepreneurs, the theoretical foundation of the field needs to be expanded to include the issue of gender in an international context. One approach would be to explore the interaction effect of gender and culture on the likelihood of an entrepreneurial orientation. The research question would be: Are the
observed differences between men and women as our study reports the same across cultures or is the entrepreneurship “gap” greater in some cultures than in others? If so, what is the theoretical basis for such differences?

This study examined only two entrepreneurial traits (innovativeness and internal locus of control) and only one of the many contextual factors (culture) which may help to explain differences among countries in the rate of new venture formation. Future research should expand this avenue of research to include other traits associated with entrepreneurial behavior and macro level factors including education system, political economy, and stage of economic development. Ultimately, consensus among these various perspectives will provide a more complete theoretical framework for explaining entrepreneurial behavior within and across varying political and socioeconomic contexts.

In this study we were able to overcome the barrier of access, a significant hurdle to international entrepreneurship research, by soliciting the cooperation of colleagues from 25 universities in 15 countries during the data collection phase of the project. As a result, there is now in place a valuable network of entrepreneurship researchers to investigate the new venture creation process in the developing economies of Latin American, Asia, and Eastern Europe.

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APPENDIX

Survey Items Related to Locus of Control and Innovativeness

Respondents were to indicate the extent to which they agree or disagree with the following statements. Five structured choices were offered: Strongly Agree, Agree, Neither Agree nor Disagree, Disagree, Strongly Disagree.

Ten items comprise the locus of control scale (adapted from Rotter 1966):

1. My success depends on whether I am lucky enough to be in the right place at the right time.
2. To a great extent my life is controlled by accidental happenings.
3. When I get what I want, it is usually because I am lucky.
4. My life is determined by my own actions.
5. When I get what I want, it is usually because I worked hard for it.
6. It is not wise for me to plan too far ahead, because things turn out to be a matter of bad fortune.
7. Whether or not I am successful in life depends mostly on my ability.
8. I feel that what happens in my life is mostly determined by people in powerful positions.
9. I feel in control of my life.
10. Success in business is mostly a matter of luck.

Eight items comprise the innovativeness scale (adapted from Jackson Personality Inventory 1994):

1. I often surprise people with my novel ideas.
2. People often ask me for help in creative activities.
3. I obtain more satisfaction from mastering a skill than coming up with a new idea.
4. I prefer work that requires original thinking.
5. I usually continue doing a new job in exactly the way it was taught to me.
6. I like a job which demands skill and practice rather than inventiveness.
7. I am not a very creative person.
8. I like to experiment with various ways of doing the same thing.