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Levels of Entrepreneurial Traits of University Students in Puerto Rico

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■ ABSTRACT

Entrepreneurship is characterized as a planned behavior by an individual with a specific set of traits. Studies have found evidence that education acts as a mediator among traits associated with entrepreneurial behavior. This research explores levels of entrepreneurial traits and abilities of students in higher education in Puerto Rico and contrasts them with other countries. Our analysis suggests a gap between entrepreneurial traits levels and key entrepreneurial indicators. Dominant traits of Puerto Rico's participants indicate high levels of confidence, energy levels and thinking ability, but low presence of business knowledge, use of outside resources, initiative and responsibility, and number sense traits. Our study validated previous researches related to entrepreneurship education, which must provide students the hands-on and how-to technical skills to create, manage, assess, and sustain new enterprises.

Keywords: entrepreneurship, entrepreneurial traits, entrepreneurial behavior

Niveles de los atributos empresariales de los estudiantes universitarios en Puerto Rico

■ RESUMEN

El emprendimiento se caracteriza por un comportamiento planificado por un individuo con una serie de atributos específicos. Estudios han encontrado evidencia de que la educación actúa como un mediador entre los atributos asociados con el comportamiento emprendedor. Esta investigación explora los niveles de atributos y habilidades emprendedoras en estudiantes universitarios en Puerto Rico y los contrasta con otros países. Nuestro análisis sugiere una brecha entre los niveles de atributos emprendedores y los indicadores emprendedores clave. Los atributos dominantes de los participantes de Puerto Rico reflejaron altos niveles de confianza, energía y capacidad de pensamiento, pero baja presencia de conocimiento empresarial, uso de recursos externos, iniciativa y responsabilidad, y atributos de sentido numérico. Nuestro estudio validó investigaciones previas relacionadas con la educación emprendedora, la cual debe brindar a los estudiantes un aprendizaje de experiencia y habilidades técnicas para crear, gestionar, evaluar y sostener nuevas empresas.

Palabras claves: emprendimiento, atributos emprendedores, comportamiento emprendedor

Introduction

Entrepreneurship is a powerful force that plays a critical role in contemporary world economies. It is also related to innovation and

improvement of our goods, services and institutions by transforming economic environments to be more efficient, affordable, and, thus, effective; consequently, entrepreneurship is a driving force for both economic growth and job creation. Given this importance, it is necessary to understand the factors that foster entrepreneurship. Research studies agree on the direct economic and social benefits of entrepreneurial activity, but there is a continuous unresolved debate to properly define entrepreneurship.

The reviewed literature highlights entrepreneurship as a planned behavior that transforms an idea for formal businesses (Rusu, Isac, Cureteanu, & Csorba, 2012) and generates value (Lans, Blok, & Wesselink, 2014) by individuals with a specific set of traits (Mueller, 2004) who are potentially influenced by their environment (Lee, Lim, & Pathak, 2009). Dissanayake & Semasinghe (2014) recognized the importance of the environment in terms of the cultural attitudes, values, and behavior, but the results of validated prior research indicates a characterization gap between culture and entrepreneurship (Hayton, George, & Zahra, 2002). Pillis & Reardon (2007) also found differences in entrepreneurial behavior between cultures. Other researchers (Zain, Akram, & Ghani, 2010) that profiled traits and the environment found that traits play a more important role explaining entrepreneurial behavior.

Based on the reviewed literature, we can support a relationship between traits, characteristics, attitudes and values, and entrepreneurial behavior. This relationship can possibly explain what separates those who choose to pursue entrepreneurial quests from those who opt not to, and why some people choose to become an entrepreneur and why others do not. Researching a specific set of traits or attitudes towards entrepreneurship and how to develop them is a growing field of research and requires further investigation and modeling (Ahmad, Xavier, & Bakar, 2014; Astuti & Martianty, 2012).

Education is recognized as a catalyst of socioeconomic activity. Entrepreneurial studies have found evidence that education acts as a mediator among traits associated with entrepreneurial

behavior (Bae, Qian, Miao, & Fiet, 2014; Patache, 2014; Rauch & Frese, 2000). Growing evidence regarding the relationship between entrepreneurs' education, their businesses and prospects of success is indicative of the importance of university-based training for both graduate and undergraduate students (Al-Habib, 2012). As a result, entrepreneurship education has been incorporated in universities, secondary schools and some elementary schools through courses, certificates or academic programs. Universities in particular have given special attention to entrepreneurial initiatives as a response to the decline of job opportunities for graduates. This research aims to explore the level of entrepreneurial traits and abilities of students in a higher education institution in Puerto Rico, and contrast it to the level of traits in university students of South Africa, the United States (USA), and the Netherlands.

Beginning in the early 1980's, a number of empirical studies were undertaken in an attempt to relate certain psychological traits to entrepreneurial intention (Mueller, 2004). The traits approach to entrepreneurship has been pursued by many researchers to separate entrepreneurs from non-entrepreneurs and to identify a list of traits specific to an entrepreneur. There is a lack of consensus on the number or ranking of traits or their validity (Sivarajah & Achchuthan, 2013). Our reviewed literature identified the following 16 categories of traits and abilities: goal setting and perseverance, human relations ability, communications ability, commitment, dealing with failure, self-confidence, risk taking, taking initiative and seeking personal responsibility, drive and energy levels, tolerance for ambiguity, thinking ability, use of outside resource persons, knowledge seeking, number sense, money sense, and business knowledge. The following section will describe the entrepreneurial traits and abilities.

Entrepreneurship is recognized as a planned behavior; it begins when an individual decides to undertake a new venture. The *goal setting* theory suggests that a person who is highly motivated to achieve a goal is more likely to persist in achieving it (De Clercq, Menzies, Diochon, & Gasse, 2009). New ventures are characterized

by uncertainty, outcomes are unknown and the potential setbacks and obstacles will influence the levels of motivation.

To manage uncertainty, entrepreneurs are in constant need of information through formal or informal networks. The ability to build *human relations* relates to the ways that personal networks, professional networks and network structures improve access to information, resources and sponsorship to complement the entrepreneurial process (Sorensen & Chang, 2006). This ability has been proven essential for nascent entrepreneurs; previous research found that an entrepreneur's social environment is one of the primary sources of information in opportunity recognition (Ozgen & Minsky, 2013). The *use of outside resource persons* in new venture initiatives is positively and significantly correlated. Networking helps to access information and other required assets to start a business. The higher the rate of networking, the greater the likelihood of a new venture will be (Sivarajah & Achchuthan, 2013). Potential entrepreneurs recognize more opportunities by expanding their knowledge as they increase the size of their social network connections (Ozgen & Minsky, 2013). As an integral part of human relations, entrepreneurs need competence in their *communication ability* to interact with different shareholders and stakeholders. Being able to communicate ideas efficiently and effectively, both verbally and in writing, has proven to be important in the entrepreneurial process (Ulvenblad, Berggren, & Winborg, 2013).

Researchers have found that *commitment* is linked to entrepreneurial performance, and that passion, values, and personality play significant roles in shaping this trait (Tasnim, Yahya, & Zainuddin, 2014). We can relate a direct relationship between commitment, human relation and goal setting, as the extant literature establishes a link between personal and environmental factors that impacts the feasibility and desirability of attaining the goal of establishing a business. A possible explanation is that the personal value attributed to the career choice of becoming an entrepreneur has a stronger effect on the level of commitment than external factors, perhaps because nascent entrepreneurs experience their preferences

as more significant factors. Entrepreneurship as a career choice is related to normative pressures from the environment. As a result, it influences nascent entrepreneurs' willingness to invest *drive and energy levels* in setting up their business (De Clercq et al., 2009). Entrepreneurs' willingness to invest time in a start-up is possibly influenced by such entrepreneurs' perceptions about their own capabilities and personal preferences.

Entrepreneurs who have the capability to transform the environment can achieve performance by always looking for an opportunity and seizing it, but given the uncertainty that characterizes new ventures, adversity is a possible outcome. *Dealing with failure* (Moruku, 2013) implies persistence, which means that entrepreneurs can bounce back from adversity, regenerate and enjoy sustainable performance. Too little persistence in dealing with adversity implicates that initiatives will be prematurely abandoned; however, just as one can persevere too little, one can also persevere too much. Unlimited perseverance can be suboptimal because enterprising behavior is commonly associated not only with perseverance, but also with flexibility, adaptability, and being proactive. An entrepreneur's *self-confidence* is generally defined as believing in oneself. Self-confidence is widely accepted as a valuable individual asset and a key to personal success (Turker & Selcuk, 2009). This trait considers that the accomplishment of goals or objectives depends more on an entrepreneur's ability and actions, rather than on luck or other people's efforts (Dinis, Paço, Ferreira, Raposo, & Rodrigues, 2013). Successful entrepreneurs are usually convinced that they can bring every activity to a successful end. They also feel that they can control their own success. Successful entrepreneurs have a high degree of endurance, which involves the ability to continue willfully, in spite of setbacks or objections.

The concept of *risk taking or risk propensity* has been related to entrepreneurship in numerous studies. Entrepreneurial activity involves risk-taking: the willingness to commit to opportunities with a possibility of failure and the willingness to take a loss (Castaño-Martínez, Ruiz-Fuensanta, & Martínez Rodríguez, 2013;

Oosterbeek, van Praag, & Ijsselstein, 2010; Sánchez, 2011. Some researchers view entrepreneurs as risk managers who, depending on the conditions, defuse risk and uncertainty with knowledge and confidence. *Tolerance for ambiguity and uncertainty* is characterized by a low avoidance of uncertainty. It is also associated with risk taking and pioneering achievement, while high avoidance of uncertainty is more relevant to a higher fear of failure, lower levels of ambition and less willingness to take risks. Entrepreneurs as pioneers and leaders who are proactive and committed to others, enjoy accountability by *taking initiative and seeking personal responsibility* for their decisions, prefer moderate risks, enjoy feedback on their performance, and may dislike routine and repetitive tasks (Santos, Caetano, & Curral, 2013; Sorensen & Chang, 2006). Entrepreneurial processes are deeply linked to an individual's characteristics given that they are the main agent in the process of deciding to implement entrepreneurial initiatives, and to assume responsibility for the consequences.

Innovative solutions occur when there is a need for a creative solution to a problem. *Thinking ability* stimulates solutions for overcoming barriers, acquiring resources and solving problems (Fillis & Rentschler, 2010). Intuitive thinking has been identified as one of the most important aspects that support a person to become an entrepreneur. It results in formulating several ideas, understanding how to make money and profit, and selecting a career path with self-confidence, risk taking, and tolerance (Muhammad, Kumar, & Ramalu, 2014). Existing empirical research suggests that the *knowledge seeking* of opportunities and the entrepreneur's prior practical and managerial experience will influence a new venture's chances of survival and its future growth (Paunescu, 2013). Creating viable and profitable ventures depends not only on the habits and routines that nascent entrepreneurs have acquired from family, schools, and work careers prior to the startup stage, but also on what entrepreneurs can learn during the startup process (Aldrich & Yang, 2014).

Once a venture is formed to take advantage of an opportunity, the entrepreneur's role shifts to a strategic one. Entrepreneurs also

need to possess the *business knowledge* that enables their management competencies to manage a business. Also, since money is unit of measure, *money sense* recognizes its intrinsic value. Management abilities are defined by the basic and specific competencies in business management, and they mostly refer to the individual's ability to manage business strategy, business resources, and human resources (Santos et al., 2013). Entrepreneurs with a higher *number sense* or financial literacy can better manage the ambiguity of resource allocation decisions. To make easy economic and financial decisions, entrepreneurs need the cognitive ability to understand financial information.

The reviewed literature establishes a link between traits and abilities to different stages of the entrepreneurial process. High levels of these characteristics suggest a propensity from an individual toward an entrepreneurial behavior. Our research aims to measure levels of traits and abilities in an educational institution associated with entrepreneurship.

The primary aim of this research is to determine the level of entrepreneurial traits in a higher education institution in Puerto Rico and identify the differences between countries. Our objectives are the following: assess the levels of entrepreneurial traits of university students in Puerto Rico and compare these levels of entrepreneurial traits with university students of South Africa, USA, and the Netherlands.

Research Design and Methodology

To assess the entrepreneurial traits of university students, a non-exploratory research design was adopted. A private university with 7,108 enrolled students in the metropolitan area of Puerto Rico was identified for this research. With a 95% confidence level and a 5% of margin of error, we obtained a sample of 365 students (Raosoft, 2015). To ensure the representativeness of the sample, a proportionate stratified random sampling in two stages was employed to determine the adequate sample proportions. In the first stage, our sample was divided in nine academic units, and in

the second stage by the academic degrees in which the students were enrolled. An existing measuring instrument was employed to obtain the traits data. This instrument was used in a comparative entrepreneurial trait research between university students of South Africa, the United States, and the Netherlands (Eeden, Louw, & Venter, 2005). The measuring instrument consisted of two sections. Section A included demographic questions. Section B included 104 items divided into 16 categories representing an entrepreneurial trait. The items were phrased as statements with a possible response range linked to a Likert five-point scale (1 = strongly disagree to 5 = strongly agree).

Data Analysis and Empirical Findings

Data Analysis for the following results was conducted in three stages: internal reliability, descriptive statistics, and factor analysis. Cronbach alpha coefficients were calculated to measure the internal reliability of the measuring instrument. Reliability coefficients of less than 0.50 were considered to be unacceptable, those between 0.50 and 0.60 were considered as sufficient, and those above 0.70 were deemed as acceptable (Sekaran & Bougie, 2010). Descriptive statistics such as the mean, standard deviation and frequency distributions were calculated to summarize the sample data distribution. To facilitate the descriptive analysis and discussion, a categorization of the Likert scale was developed by dividing the scale into three equal parts: low (less than or equal to 2.6), average (between 2.6 and 3.4) and high (above 3.4). Traits categories that scored low were considered “underdeveloped,” those with average scores were considered “developed,” and those that scored high were considered “well developed.” An exploratory factor analysis will be developed to explore the interrelationships among the entrepreneurial traits categories for the local data (Sekaran & Bougie, 2010).

The instrument was completed by 329 students. In terms of gender, 56.4% of our respondents were female. A total of 57.3% were enrolled in a bachelor’s degree program and 14.9%

in graduate studies. The dominant age was between < 20 and 20 to 25 years representing 57.6% of the respondents. Students were asked if they have a close relative who is an entrepreneur. The responses indicated that 69.6% did not. In addition, entrepreneurial intentions were explored and 50.8% have the intention to start a new venture. This sample will be compared to a sample of 758 students in South Africa, 379 in USA, and 391 in the Netherlands. The statistical analysis of the data included an assessment of the internal reliability of the measuring instrument. Cronbach Alpha coefficients were calculated to explore the internal consistency within the sets of 16 entrepreneurial traits. These coefficients measure the degree of responses in a consistent manner to similar items (Ursachi, Horodnic, & Zait, 2015). *Risk taking (G)*, *tolerance for ambiguity and uncertainty (J)* and *money sense (O)*; scored low on Cronbach Alpha Coefficients. These categories were excluded from further analysis to enhance the reliability of the scores. All other entrepreneurial traits coefficients scored above .50, suggesting an acceptable reliability for the measures.

The measurement instrument was composed of 104 items associated with 16 entrepreneurial traits identified in the academic literature. Each respondent had to assess themselves in a Likert scale in terms of each trait. Table 1 presents a summary of the descriptive statistics for the entrepreneurial traits categories for students in Puerto Rico. The four most developed traits in Puerto Rico are *self-confidence (F)*, *goal setting and perseverance (A)*, *drive and energy level (I)* and *thinking ability (K)*. The four least developed entrepreneurial traits are *business knowledge (P)*, *the use of outside resource persons (L)*, *taking initiative and seeking personal responsibility (H)* and *number sense (N)*.

Table 1

Descriptive statistics of entrepreneurial traits: Puerto Rico

Puerto Rico				Frequency distributions					
Category	n	Mean	SD	Low		Average		High	
A	329	3.99	0.73	6	1.8%	69	21.0%	254	77.2%
B	329	3.79	0.72	8	2.4%	98	29.8%	223	67.8%
C	329	3.81	0.69	8	2.4%	92	28.0%	229	69.6%
D	329	3.94	0.76	8	2.4%	81	24.6%	240	72.9%
E	329	3.84	0.73	10	3.0%	84	25.5%	235	71.4%
F	329	4.03	0.67	6	1.8%	51	15.5%	272	82.7%
H	329	3.46	0.71	23	7.0%	151	45.9%	155	47.1%
I	329	3.96	0.71	4	1.2%	76	23.1%	249	75.7%
K	329	3.95	0.73	6	1.8%	80	24.3%	243	73.9%
L	329	3.41	0.74	29	8.8%	158	48.0%	142	43.2%
M	329	3.52	0.84	33	10.0%	132	40.1%	164	49.8%
N	329	3.48	0.91	45	13.7%	124	37.7%	160	48.6%
P	329	3.40	0.94	55	16.7%	116	35.3%	158	48.0%

Source: Own elaboration.

An exploratory factor analysis was developed to assess the interrelationships among the entrepreneurial traits categories. To maximize factor loading, an oblique rotation (Tabachnick, B. G., & Fidell, 2001) was selected to correlate the entrepreneurial traits. A total of 13 of the 16 entrepreneurial traits were subject to principal component analysis (PCA) using SPSS version 22. It is important to remember that three of them were excluded because of low reliability coefficients. The Kaiser-Meyer-Olkin value was .931, exceeding the suggested value of .6 and Barlett’s test of Sphericity reached statistical significance, supporting the factorability of the correlation matrix. Principal component analysis revealed the presence of two components with eigenvalues exceeding 1, explaining 53.1% and 8.9% of the variance respectively. The Component Correlation Matrix for the direct oblimin rotation revealed a strong correlation of .653. As suggested by the Trait Pattern matrix (Table 3), component 1 grouped *goal setting and*

perseverance (A), drive and energy levels (I), commitment (D), self-confidence (F), dealing with failure (E), thinking ability (K), human relations (B) and communication ability (C).

Based on the reviewed literature we described the aforementioned component as proactiveness (Febrica & Eliyana, 2015). The second suggested component is built by *business knowledge (P), Use of outside resource persons (L), Number sense (N), Knowledge seeking (M), taking initiative and seeking personal responsibility (H)*. We described this construct as the knowledge component (Dohse & Walter, 2012).

Table 2

Entrepreneurial traits pattern matrix: Puerto Rico*

	Component	
	(1) Proactiveness	(2) Knowledge
Goal setting and perseverance (A)	.875	
Drive and energy levels (I)	.815	
Commitment (D)	.803	
Self-confidence (F)	.768	
Dealing with failure (E)	.745	
Thinking Ability (K)	.701	
Human relations (B)	.694	
Communication ability (C)	.673	
Business knowledge (P)		.892
Use of outside resource persons (L)		.831
Number Sense (N)		.756
Knowledge seeking (M)		.660
Taking initiative and seeking personal responsibility (H)		.613
Extraction Method: Principal Component Analysis		
Rotation Method: Oblimin with Kaiser Normalization		

*Rotation converged in five iterations.
Source: Own elaboration.

In Table 3 we can observe that the top entrepreneurial traits for Puerto Rico, South Africa, USA, and the Netherlands are *self-confidence (F)*, *commitment (D)* and *number sense (N)*. *Commitment (D)* was weighted as top for both South Africa and USA. The highest mean scored was 4.32 for *Commitment (D)* in the USA. We can also observe that the level of entrepreneurial traits for *drive and energy levels (I)* are the only common traits between the four countries. *Dealing with failure (E)*, was a common trait between South Africa, USA and Netherlands. The Netherlands and the USA present *Human relations* traits as common. *Number sense (N)* was a unique trait in the Netherlands, *goal setting and perseverance (A)* in South Africa, as *self-confidence (F)* and *thinking ability (K)* in Puerto Rico.

Table 3

Summary of the four most developed entrepreneurial traits

Puerto Rico		Mean		South Africa		Mean
F	Self confidence	4.03	D	Commitment		4.05
A	Goal setting and perseverance	3.99	E	Dealing with failure		3.93
I	Drive and energy levels	3.96	I	Drive and energy levels		3.91
K	Thinking ability	3.95	A	Goal setting and perseverance		3.82
USA		Mean		The Netherlands		
D	Commitment	4.32	N	Number sense		3.68
I	Drive and energy levels	4.06	E	Dealing with failure		3.65
B	Human relations	3.98	I	Drive and energy levels		3.64
E	Dealing with Failure	3.96	B	Human relations		3.61

Source: Own elaboration.

Table 4 presents the four least developed entrepreneurial traits between the countries. We can observe that *Business knowledge (P)*,

Knowledge seeking (M), and the *Use of outside persons (L)* were the lowest scored traits between the four countries. *Taking initiative and seeking personal responsibility (H)* and the *use of outside persons (L)* was a common least developed entrepreneurial trait in the four countries. *Knowledge seeking (M)* and *Communication ability (C)* were common traits between South Africa, USA and the Netherlands. *Business knowledge (P)* and *number sense (N)* entrepreneurial traits were not common in the other three countries. The lowest mean score in the Netherlands for the *Use of outside persons* entrepreneurial trait was 2.74.

Table 4

Summary of the four least developed entrepreneurial traits

Puerto Rico		Mean	South Africa		Mean
P	Business Knowledge	3.40	M	Knowledge seeking	3.14
L	Use of outside resource persons	3.41	L	Use of outside resource persons	3.18
H	Taking initiative and seeking personal responsibility	3.46	H	Taking initiative and seeking personal responsibility	3.32
N	Number sense	3.48	C	Communication ability	3.42
USA		Mean	The Netherlands		
M	Knowledge seeking	2.95	L	Use of outside resource persons	2.74
L	Use of outside resource persons	3.19	M	Knowledge seeking	2.96
H	Taking initiative and seeking personal responsibility	3.49	H	Taking initiative and seeking personal responsibility	3.08
C	Communication ability	3.54	C	Communication ability	3.22

Source: Own elaboration.

Discussion

For our discussion, we will incorporate data sets and key indicators from the Global Entrepreneurship Monitor (GEM). Entrepreneurial intention is described as the individuals who are latent entrepreneurs who intend to start a business (Singer, Amorós, & Moska, 2015). GEM data for Puerto Rico indicates that 12.5% intend to start a new venture (Aponte, Álvarez, & Lobato, 2015). There are not many differences when comparing entrepreneurial intention levels to USA (12%), South Africa (11.8%), and the Netherlands (10.8%), respectively. We can cautiously contrast this rate with 50.8% of the stated entrepreneurial intention of our sample, but our results challenge this entrepreneurial intention rate.

One of the key findings in entrepreneurial literature is the significance of the proximity of the family to support an entrepreneur (Aguilera, Rupp, Williams, & Ganapathi, 2007; Dinis et al., 2013; Ghazali, Ibrahim, & Zainol, 2012; Sivarajah & Achchuthan, 2013). Students responses indicated that a dominant 69.9% do not have an entrepreneur as a family relative. This represents an area of opportunity where a supportive entrepreneurial environment is needed to nurture the new ventures. *Drive and energy levels (I)* is highly related to entrepreneurial intentions (De Clercq et al., 2009). This trait was the only common element in all countries included in this research. Perceived capability is described as the perception that the individual has the required skills and knowledge to start a business (Sivarajah & Achchuthan, 2013). Our results revealed (Table 6) that our sample of Puerto Rico's students shows that three of the four least developed traits are knowledge related: *business knowledge (P)*, the *use of outside resource persons (L)*, and *number sense (N)*. GEM perceived capability data shows that 48.8% of the Puerto Rican population think they have the skills and knowledge to start a new venture (Aponte et al., 2014). One possible explanation for this gap is the educational setting in which the research takes place. Students are seeking knowledge through college education. It is interesting to note that *use of outside resource persons (L)* and *taking initiative and seeking personal responsibility (M)* was a common

least developed trait in all countries. Taking initiative and seeking personal responsibility is discussed in the reviewed literature as a basic step in the entrepreneurial process (Holland & Shepherd, 2013; Tasnim et al., 2014; Ulvenblad et al., 2013).

GEM data related to individuals' perceived opportunities in Puerto Rico is one of the main lowest in the region with a rate of 25.1% (Aponte et al., 2014). A perceived opportunity is described as the individuals who see good opportunities to start a new venture (Singer et al., 2015). *Thinking ability (K)* was one of the four most developed traits in Puerto Rican students. As referenced in our literature (Fillis & Rentschler, 2010; Muhammad et al., 2014), thinking ability is essential to the opportunity recognition and idea development processes. Contrasting this trait output with the other countries, our results showed that *thinking ability (K)* trait was not a most or least developed in the rest of the countries.

Fear of failure is described as the perception of individuals who indicate that fear of adverse results will prevent them from starting up a new venture (Singer et al., 2015). The *Dealing with failure (E)* trait was a common most developed trait in students in South Africa, USA, and the Netherlands. GEM individual data reflects relative high values for the Netherlands (39%) and the USA (30%). This trait was not weighted as a most or least developed in among Puerto Rican students; nonetheless, Puerto Rico's individual GEM data relating to fear of failure (24%) is the lowest among the countries in this research.

As an effort to contrast entrepreneurial traits between countries a summated rating scale was developed. A summated scale is a scale formed by adding together all the scores of each element across a numbers of related quantitative variables (Spector, 1992). This proposed scale (Table 5) will use the means of the entrepreneurial traits of the participants in South Africa, the USA, and the Netherlands (Eeden et al., 2005). The sum of the means of the entrepreneurial traits does not reflect large differences between countries. Summated values for Puerto Rico were 48.57, South Africa 46.96, the USA 48.68, and the Netherlands 44.15. Results indicated a 0.11 difference between the USA and Puerto Rico.

Table 5

Entrepreneurial traits means summated scale

Country		Mean
Puerto Rico	Σ	48.57
South Africa	Σ	46.96
USA	Σ	48.68
The Netherlands	Σ	44.15

Source: Own elaboration.

Conclusion and Recommendations for Future Research

Research objectives directed us to assess the levels of entrepreneurial traits of university students in Puerto Rico and compare levels of entrepreneurial traits between university students of South Africa, USA, and the Netherlands. Our ranking showed that the USA participants are the most entrepreneurial, followed by a very small difference by the students surveyed in Puerto Rico. The students from South Africa and the Netherlands are categorized third and fourth respectively. Our research encountered limitations regarding the availability of the raw data sets. Our findings have implications for educators, potential entrepreneurs and policy makers. We gathered the data through a validated entrepreneurial traits questionnaire with 104 Likert scale premises. Reliability analysis excluded risk taking, tolerance for ambiguity and uncertainty and money sense traits. Further studies should consider this exclusion to explore if these low reliability coefficients are related particularly to university students. Our analysis suggests that there is a gap between entrepreneurial traits levels and key entrepreneurial indicators. Dominant traits of Puerto Rico’s participants indicate high levels of confidence, energy levels and thinking ability, but low presence of business knowledge, use of outside resources, initiative and responsibility and number sense traits. To develop these low-level traits, it is recommended to incorporate experiential learn-

ing rather than entrepreneurial classroom-based programs. Studies have found that experiential learning has a higher impact on entrepreneurial engagement (Wong Poh Kam, Ping, & Pei, 2014). Factor analysis identified two components groups of traits related to *proactiveness* and knowledge. Support networks are one of the main sources of knowledge and are essential to entrepreneurs as indicated by literature (Ozgen & Minsky, 2013). Our results seem to suggest that an entrepreneurial support ecosystem is necessary to support students to evolve to entrepreneurs. An individual attitude towards entrepreneurship can be influenced by educators or practitioners (Astuti & Martdianty, 2012). It is important to guide entrepreneurship education toward the strengthening of entrepreneurial attitudes and skills. It is also important to not necessarily consider business education to be related to entrepreneurial intentions. Studies have found that entrepreneurship education was related more positively to a participant's entrepreneurial intentions than was business education (Bae et al., 2014). Entrepreneurs are not necessarily born with a set of perfect traits or characteristics. Researchers have found evidence that entrepreneurship education is an effective pedagogical tool for enhancing a student's entrepreneurial aspirations (Bae et al., 2014). Growing evidence regarding the relationship between entrepreneurs' education, their businesses, and prospects of success is indicative of the importance of university-based training for both graduate and undergraduate students (Al-Habib, 2012). Successful entrepreneurship required a set of competencies and a planned action (Krueger Jr. & Reilly, 2000). Entrepreneurs think and process information differently from non-entrepreneurs and such differences may help to distinguish people who create or aim to establish businesses from people who do not create and will not create companies (Ahmad et al., 2014). Our study validated previous researches (Bae et al., 2014; Brooks et al., 2007; Sánchez, 2011; Singh, 2013) with respect to entrepreneurship education which must provide students the hands on, how-to technical skills to create, manage, assess, and sustain new enterprises. Skills and traits alone hardly generate new enterprises, but they certainly guide their development.

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