Accepted Version

Abstract

Currently, entrepreneurship is of great importance to economic growth and reduced unemployment. Since entrepreneurial behaviour is multidimensional, interest in understanding the roles of individual variables has increased significantly. The present study uses the theoretical and empirical framework of entrepreneurship research to explain the existence of the psychological profile of an entrepreneur, the impact of the psychological variables of personality on behaviour and entrepreneurial intention, and the relationship between personality traits and other specific traits frequently related to entrepreneurship. A sample of 337 participants composed of real entrepreneurs (n=83) and university students (n= 254) with high scores in entrepreneurial intention were evaluated in personality (Big Five) and other specific traits: ambiguity tolerance, emotional intelligence and coping and problem solving. The results showed that both groups share the same profile in these variables once adjustments were made for the effects of sex and age. A target profile and a preliminary evaluation of its best possible accuracy are provided.

Keywords: entrepreneurship, target profile, Big Five, emotional intelligence

Are entrepreneurs born or made? The influence of personality

1. Introduction

The development of entrepreneurial competence is one of the main objectives for the progress of a society and improves the employability of citizens. Despite this interest, research has not yet found an entrepreneurial personality profile that includes both the stable and the malleable characteristics of the individual (Obschonka & Stuetzer, 2017). Knowledge of this profile has important implications for clarifying the nature of entrepreneurs and the individual characteristics that are significantly connected to successful entrepreneurship (Lackéus, 2015).

1.1. Entrepreneurial Intention

The entrepreneurial intention (EI) is defined as a desire to start a business (Krueger, Reilly, & Carsud, 2000) or a disposition to complete an act (Liñán & Fayolle, 2015). Bird describes it as "*a process, state, or act of conscious willing in the present to make some experience become true, realized, manifested, or created in the future…Thus, intentions can be to do, to be or to have"* (Bird, 2015, p.143). For this author, it is the state of mind that aims actions towards entrepreneurial behaviour.

Several authors consider that EI is determined by specific psychological traits (Owoseni, 2014), such as a need for achievement, an internal locus of control, a tolerance for ambiguity, risk-taking propensity, and beliefs (Hajer & Haib, 2013).

Research on EI in university students is relevant, since these students are potentially enterprising (Bird, 2015; Krueger, Reilly, & Carsrud, 2000). Bird (2015) reviewed 78 articles and found that more than 80% of the studies on entrepreneurial intention surveyed the students (Bird, 2015).

1.2. Psychological and individual variables

Entrepreneurship refers to a set of behaviours that include the exploration of opportunities, innovation and value creation (Shane & Venkataraman, 2000). Since business behaviour is a function of the individual differences, personality and capacity factors, it must predict business activity and discriminate between 'successful' and 'unsuccessful' entrepreneurs (Rauch & Frese, 2007; Zhao & Seibert, 2006).

Over time, studies examined the role of personality in predicting entrepreneurial performance and the traits that distinguish entrepreneurs from non-entrepreneurs. Based on the Big Five model (McCrae & Costa, 2008), the research has suggested that entrepreneurship is associated with higher levels of extraversion (E), conscientiousness (C) and openness (O) and lower levels of agreeableness (A) and neuroticism (N) (Zhao, Seibert, & Lumpkin., 2010). Nevertheless, recent personality models agree that an individual's personality is best defined as a dynamic system with biological traits and specific traits and seek to combine both personality variables to obtain a coherent whole of the individual (McCrae & Costa, 2008).

Among the specific traits, tolerance of ambiguity has received the highest research interest (Gurel, Altinay, & Daniele, 2010). Given that entrepreneurial activity requires constant decision making with insufficient information, EI has been linked to the ability to withstand ambiguous situations (McMullen & Shepherd, 2006). Other traits studied were self-confidence, coping and problem solving. The research has shown that entrepreneurs are more self-confident (Liñán & Fayolle, 2015) and use strategies for coping and problem solving more effectively (Chen, Chang, & Lo, 2015). Several studies have concluded that people with higher scores on emotional intelligence are

more creative and proactive and show a higher level of EI (Farrington, Venter, & Neethling, 2012).

Research has shown differences between men and women in personality traits (Weisberg, DeYoung, & Hirsh, 2011), emotional variables (Cabello et al., 2016) and EI (Santos, Roomi, & Liñan, 2016). These studies reveal that women report higher scores than men on Big Five personality traits, less frequently perceive themselves as entrepreneurs and have lower perceptions of self-confidence in performing entrepreneurial tasks. On the other hand, the literature indicates that changes in personality during the life cycle in general extraversion and agreeableness increase linearly with age, extraversion and openness decrease in middle age, and responsibility and neuroticism decrease in older adulthood (Jokela et al., 2017; Morales-Vives et al, 2014). These findings indicate the suitability of controlling for the effect of sex and age on the entrepreneur's profile.

Previous studies have evaluated the EI and the personality profiles in university students or entrepreneurs through personality variables shown to be characteristic of entrepreneurial behaviour. However, studies that evaluate both groups at the same time with respect to a wide range of personality variables are scarce. Therefore, we use IE as a predictive variable of entrepreneurial behaviour in both groups. The main goal of our study is to verify which psychological variables, i.e., traits (Big Five) and specific traits (ambiguity tolerance, emotional intelligence, coping and problem solving), are more relevant in entrepreneurs and what similarities are shown in the profiles of university students who have high entrepreneurial intentions. Since previous research has shown that age and sex could influence the profile of the entrepreneur, both variables will serve as covariates in the analysis. Two hypotheses are evaluated: (1) Entrepreneurs will be characterized by a psychological profile with high scores in extraversion,

conscientiousness, openness, emotional intelligence and ambiguity tolerance and low scores in agreeableness and neuroticism; (2) this profile will be similar to that of university students with high entrepreneurial intention.

Method

2.1. Participants

The sample consisted of 597 participants, 83 of whom were real entrepreneurs, 254 of whom were university students with high scores in entrepreneurial intention and 260 of whom had low scores in entrepreneurial intention.

For the selection of entrepreneurs, we follow the definition of a successful entrepreneur by Karimi, Kloshani, & Bakhshizadeh (2012): a business owner who succeeds to overcome different challenges and problems and can still survive in difficult situations (Karimi, Kloshani, & Bakhshizadeh, 2012). An unsuccessful entrepreneur is the owner of a failed business. A venture fails when it cannot continue to operate under the current ownership and management (Pretorius, 2009).

Several business associations were contacted, and their collaboration was requested voluntarily and anonymously. The inclusion criteria were entrepreneurs had created a company that was active and that they had reached the critical period of the first four years after its establishment.

The mean age of real entrepreneurs was 42.36 years (SD = 7.69), and the university students were 22.17 years old (SD = 4.68). The mean length of time during which participants worked as entrepreneurs was 6.85 years (SD=4.25). Regarding the sex of participants, in the group of real entrepreneurs, the men comprised the majority (58 men and 25 women), while in the group of university students, women were more common (166 men and 348 women).

The characteristics of the sample of successful entrepreneurs are similar to those identified in this group in previous studies, such as gender and average age, level of education, and business lifetime (Arasti, Zandi, & Bahmani, 2014).

2.2. Materials and procedure

Participants completed a questionnaire in one session that included measures of EI, personality, emotional intelligence, ambiguity tolerance and coping and problem solving. The completion of the questionnaire required approximately 40-45 minutes. At the beginning of the session, researchers gave instructions on the questionnaire, and the anonymity and confidentiality of the data were guaranteed. All participants were asked about "consent to participate".

2.2.1. Entrepreneurial Intention. It was evaluated with 4 items on a Likert scale (Espíritu & Sastre, 2007) that reflect in one factor the desire, intention to create one's own company, and the degree of effort one is willing to exert. The items should be valued on a Likert scale between 1 and 10, where 1 represents total disagreement and 10 represents total agreement. Therefore, a high score indicates high levels of the characteristic analysed. This factor explains 83.54% of the variance and has high reliability (Cronbach's alpha=. 93).

To determine the students with high and low entrepreneurship, the original sample of 949 volunteer university students was divided between those who obtained a score less than or equal to 5.0 (25th percentile) (n1 = 260) and students with a clear intention to entrepreneurship (n2 = 254), with a score on the EI scale of greater than or equal to 8.0 (75th percentile). All cases in which EI were not clear were removed from subsequent analyses.

2.2.2. Personality. We used a shorter version of the NEO Personality Inventory (NEO-PI), namely, the NEO-Five Factor Inventory (NEO-FFI; Costa y McCrae, 1999), which has 60 items (12 per domain) derived from the original 240 items. The five factor domains assessed by this measure are neuroticism (N), extraversion (E), openness to experience (O), agreeableness (A), and conscientiousness (C). For our sample, we obtained adequate reliability: alpha (N) = .85; alpha (E) = .84; alpha (O) = .78; alpha (A) = .73; alpha (C) = .79.

2.2.3. Coping and Problem Solving. We used the Inventory of Coping and Problem Solving (ISAP) (Miguel-Tobal & Casado, 1992). It contains 25 items and three factors: self-confidence/insecurity; reflectiveness/impulsiveness; and problem solving strategies. Each of the three factors shows a high correlation with the total score of the instrument, ranging between .52 and .75. For our sample, alpha coefficients were .86 for self-confidence/insecurity, .73 for reflectiveness/impulsiveness and .819 for problem solving strategies.

2.2.4. Tolerance of Ambiguity. We used a shorter Spanish-language version of The Multiple Stimulus Types Ambiguity Tolerance Scale-II (MSTAT-II) (Arquero & Mclain, 2010) that contained 13 items. Higher scale scores indicate greater ambiguity tolerance. For our sample, we obtained an alpha of .86.

2.2.5. Emotional Intelligence. Emotional intelligence was evaluated with the shorter Spanish-language version of the Trait Meta-Mood Scale (Fernandez-Berrocal, Extremera, & Ramos, 2004). It evaluates the extent to which people attend to and value their feelings (attention), feel clear rather than confused about their feelings (clarity), and use positive thinking to repair negative moods (repair). It contains 24 items (eight

for each subscale). For our sample, Cronbach's alpha was .91 for attention, .89 for clarity and .84 for repair.

2.3. Statistical Analysis

First, the relationship between sex and being entrepreneurs or students with high entrepreneurial intention was assessed using the $\chi 2$ statistic. The age of both groups was compared through Fisher's F. In addition, an ANOVA was performed to compare both groups in the rest of the measures.

Second, to analyse the differences between entrepreneurs and students with high entrepreneurial intention profiles, a generalized linear mixed model (GLMM) was performed using the maximum likelihood estimation (MLE) for each psychological variable (emotional intelligence, tolerance of ambiguity, personality and problem solving), using the group to which the participant belongs (employer vs. university student) as a fixed factor and sex (man vs. woman) and age as co-variables.

A discriminant analysis was performed in which variables such as emotional intelligence, tolerance of ambiguity and personality were included as independent variables, and the grouping variable was belonging to one of the two groups (high or low entrepreneurial intention).

All analyses were performed with SPSS 22.0.

3. Results

3.1. Differences between entrepreneurs' and university students with high entrepreneurial intention' profiles

INSERT TABLE 1 HERE

The results showed significant differences between entrepreneurs and university students with high EI on all measures except for emotional attention, extraversion, openness, agreeableness, conscientiousness and neuroticism. Among the traits of the Big Five, the highest scores are obtained in conscientiousness, openness and extraversion. The group of the real entrepreneurs received the lowest score in neuroticism. Regarding emotional intelligence, the highest score is obtained in emotional repair. These results confirm hypothesis 1.

Students, like entrepreneurs, obtain the highest scores in ambiguity tolerance and emotional repair. Among the characteristics of the Big Five, students also obtain the highest scores in conscientiousness, openness and extroversion. In the same way, they obtain the lowest score in neuroticism. Hence, hypothesis 2 received support.

These results showed very significant differences between the groups in many of the psychological variables considered. Given that the relation between sex and group was significant (χ^2 = 36.94, p = .000), a GLMM was performed to confirm if the differences found in the previous analysis were due to the effects of sex and age.

3.2. Controlling effect of participant sex and age

INSERT TABLE 2 HERE

Table 2 shows the results of the GLMM analysis. When adjustments were made for sex and age effects, the intergroup differences disappeared, so there are not differences between entrepreneurs and students with high EI.

3.3. Appropriate profile for the prediction of entrepreneurial intention

To establish the appropriate profile for the prediction of the EI that can be used for the practice of I/O psychology, students with high EI (N=254*)* were compared with the

answers of the group of 260 students with low EI (less than 5.0) (*M* = 2.94, *SD* = 1.28, range between 1 to 4.75). The classification table of the discriminant analysis (Table 3) shows a total accuracy of 68.30% (percentage of correctly classified cases). As discriminant analysis is prone to over-estimation of predictive accuracy using a single data sample, a leave-one-subject-out cross-validation was used. This approach repeatedly splits the data according to the number of subjects in the sample. Additionally, one subject is randomly selected for testing purposes, while the other subjects are used for training the model. This procedure is repeated until all the subjects have been used as test data. This method is especially useful in practical applications, in which the model is used to predict the status of new individuals (Koul, Becchio, & Cavallo, 2018). After cross-validation, a total accuracy of 67.20% was obtained (Table 3).

INSERT TABLE 3 HERE

The algorithm resulting from the discriminant analysis was the following: EI = .74 (self-confidence) + .73 (emotional repair) + .61 (resolution strategies) + .54 (ambiguity tolerance) + .53 (extroversion) + .49 (emotional clarity) + .40 (conscientiousness) + .40 (reflectivity-impulsivity) -.38 (neuroticism) + .16 (agreeableness) +.14 (openness) + .08 (emotional attention).

The canonical correlation was .423 and the centroids of the groups in the discriminant function were: group 1 (low EI) =-.486; group 2 (high EI) =.446. Cut off scores for high EI was higher or equal to 8 and for low EI was less than 5.0. As the model shows, all the variables have a positive weight in the prediction of EI except neuroticism, whose relation is negative (i.e., low EI associated with higher neuroticism).

Figure 1 shows that 80.3% of entrepreneurs are classified in the high EI group, while 19.7% in the low EI group by the previous algorithm.

INSERT FIGURE 1 HERE

4. Discussion

The objective of the present study was to identify the psychological profile of entrepreneurship by combining traits and specific traits. Our results show that the group of entrepreneurs and the students with high EI have the same entrepreneurial psychological profile, which is characterized by high scores on extraversion, conscientiousness, openness, emotional intelligence, self-confidence and ambiguity tolerance and low scores on agreeableness and neuroticism. These findings are consistent with the results of previous research focused on detailing the profiles of entrepreneurs among Big Five personality traits (Obschonka et al, 2013) and specific traits such as self-confidence (Liñán & Fayolle, 2015), tolerance of ambiguity (Pillis & Readorn, 2007), emotional intelligence (Ahmetoglu, Leutner, & Chamorro-Premuzic, 2011), and strategies for coping and problem solving more effectively (Armstrong, Cools, & Sadler-Smith, 2012).

Other researchers have studied the same issue with university students, trying to identify the psychological variables related to EI, finding similar results in terms of the variables involved (Karabulut, 2016). Our classification model possesses a 36% false-positive rate and a 28-29% false-negative rate, which indicates that the prediction is not as accurate as we would like it to be. Other additional variables (socio-economic context, financial capacity, family entrepreneurship background, etc.) need to be added to the model to improve its predictive capacity.

Nevertheless, few studies have evaluated a group of real entrepreneurs and students to identify the entrepreneurial psychological profile and its general and specific traits. Additionally, few studies have aimed to determine and discuss the influence of more stable traits on the most malleable psychological factors. This study did attempt to achieve these objectives, which is one of the main contributions of this study.

The results show a profile of the Big Five that coincides with that found by other authors (Zhao et al., 2010). This profile has more robust effects than single Big Five traits (Obschonka et al, 2013, 2014), predicts behaviour and EI and is related to skills, entrepreneurial attitudes and self-identity (Obschonka et al, 2015, 2017). These findings are consistent with the results shown in our study.

A single profile of the Big Five may not be sufficient to determine the psychological characteristics related to entrepreneurial success and EI (Leutner et al., 2014). These results suggest that other specific personality traits are stronger predictors of EI than the Big Five traits are.

On the other hand, in terms of practical implications, these findings help us to identify a profile of predisposition to entrepreneurship, which will allow for the planning of educational programmes, the evaluation of the psychological profile and the support of specific traits related to EI.

In relation to the effect of sex, our results are consistent with those of previous research that note that, in general, women have lower scores on EI and on the Big Five entrepreneurial profile (Obschonka et al., 2014). The lower rates of female entrepreneurship could be due to differences in self-efficacy beliefs, risk-taking and other psychological variables (Global Entrepreneurship Monitor, GEM, Smith College, 2017). More research is needed to better understand the relationships among sex, traits,

specific traits and entrepreneurial intention to work on specific programmes that reduce this gender gap and increase levels of female entrepreneurship.

3.3. Limitations and future research

Our study has limitations that must be overcome in future studies. First, it would be desirable to increase the number of entrepreneurs to better represent the population of entrepreneurs. Second, a longitudinal study would have been more appropriate to determine whether there is a transition from intention to behaviour among the students in whom the entrepreneurial profile was found.

To better understand the entrepreneurship profile and to develop more precise prediction models, future studies should also evaluate, in addition to the specific traits considered here, another set of emotional and cognitive variables (such as self-efficacy, cognitive styles and positive and negative affect), as well as sociodemographic, economic and family entrepreneurship background variables.

In the group of entrepreneurs, it would also be interesting to include other personal and environmental variables identified in previous literature that differ between successful and unsuccessful entrepreneurs; compared to unsuccessful entrepreneurs, successful entrepreneurs have a greater internal locus of control, were less satisfied with their previous jobs, were more fearful of dismissal from their previous jobs, are younger, and are more were often married (Brockhaus, 1980; Brockhaus & Nord, 1979; Rauch & Frese, 2000). Distinguishing both groups and comparing their business profile would be relevant.

4. Conclusions

This paper has focused on recognizing the psychological profile of entrepreneurs and determining whether those variables could be present in university students as a function of their EI. The results show that the assessment that was developed permits the identification of an entrepreneurial profile according to personality traits and specific traits.

The results of this study increase the discussion about the impact of the Big Five on EI. As noted above, there are many studies that reveal a profile of the Big Five associated with entrepreneurial success. However, fewer studies have been conducted examining the role of the Big Five profile in predicting EI; in addition, the results showed low percentages of prediction, as in our work.

Our results support those of previous studies that indicate that the Big Five is positively related to intention and entrepreneurial behaviour, showing significant differences between participants with high and low EI and presenting a profile similar to that of the group of real entrepreneurs. However, our results also add value to research on the study of personality in the prediction of EI because although a particular Big Five profile is favourable, it may not be enough to predict entrepreneurial success.

References

Ahmetoglu, G., Leutner, F., & Chamorro-Premuzic, T. (2011). EQ-nomics: Understanding the relationship between individual differences in trait emotional intelligence and entrepreneurship. *Personality and Individual Differences*, *51*(8), 1028-1033. doi:10.1016/j.paid.2011.08.016

Arasti, Z., Zandi, F., & Bahmani, N. (2014). Business failure factors in Iranian SMEs: Do successful and unsuccessful entrepreneurs have different viewpoints? *Journal of Global Entrepreneurship Research, 4*, 1, 10. doi: 10.5267/j.msl.2012.06.013

Arquero, J. L., & McLain, D. L. (2010). Preliminary validation of the Spanish version of the multiple stimulus types ambiguity tolerance scale (MSTAT-II). *The Spanish Journal of Psychology, 13*(1), 476-484. Doi: 10.1017/S1138741600004029

Armstrong, S. J., Cools, E., & Sadler-Smith, E. (2012). Role of cognitive styles in business and management: Reviewing 40 years of research. *International Journal of Management Reviews*, *14*(3), 238-262. doi: 10.1111/j.1468-2370.2011.00315.x

Bird, B. (2015). Entrepreneurial intentions research: A review and outlook. *International Review of Entrepreneurship*, *13*(3), 143-168.

Brockhaus, R. H. (1980). Psychological and environmental factors which distinguish the successful from the unsuccessful entrepreneur: A longitudinal study. Academy of Management Proceedings of the 40th annual meeting, 368-372.

Brockhaus, R. H., & Nord, W. R. (1979). An exploration of factors affecting the entrepreneurial decision: Personal characteristics versus environmental characteristics. Academy of Management Proceedings of the 39th annual meeting.

Cabello, R., Sorrel, M. A., Fernández-Pinto, I., Extremera, N., & Fernández-Berrocal, P. (2016). Age and gender differences in ability emotional intelligence in adults: A cross-sectional study. *Developmental Psychology*, *52*(9), 1486-1492. doi: 10.1037/dev0000191

Costa, P. T., Jr., & McCrae, R. R. (1999). Inventario de Personalidad NEO Revisado (NEO PI-R). Inventario NEO reducido de Cinco Factores (NEO-FFI). Manual. Madrid: TEA.

Chen, M. H., Chang, Y. Y., & Lo, Y. H. (2015). Creativity cognitive style, conflict, and career success for creative entrepreneurs. *Journal of Business Research, 68*(4), 906-910.doi: 10.1016/j.jbusres.2014.11.050.

Espíritu-Olmos, R., & Sastre-Castillo, M. A. (2007). The entrepreneurial attitude during the academic life of the university students. *Notebooks Business Studies*, 17, 95–116.

Farrington, S.M.; Venter, DJ. & Neethling, A. (2012). Entrepreneurial attributes and intentions: Perceptions of South African business science students. *Management Dynamics, 21*(3), 17-32.

Fernández-Berrocal, P., Extremera, N., & Ramos, N. (2004). Validity and reliability of the Spanish modified version of the Trait Meta-Mood Scale. *Psychological Reports, 94*, 751–755.

Global Entrepreneurship Monitor (GEM), Smith College, "Women's Entrepreneurship 2016/2017 Report" (2017). *Financial Education and Entrepreneurship Research*. Retrieved from https://scholarworks.smith.edu/conway_research/1

Gurel, E., Altinay, L., & Daniele, R. (2010). Tourism students' entrepreneurial intentions. *Annals of Tourism Research, 37*(3), 646-669. doi:10.1016/j.annals.2009.12.003

Hajer, H. & Habib, A. (2013), Factors of entrepreneurial intention of the public civil servant: Empirical evidence in the case of Tunisia. *International Journal of Business Management and Economic Research, 4* (1), 673-687.

Jokela, M., Pekkarinen, T., Sarvimäki, M., Terviö, M., & Uusitalo, R. (2017). Secular rise in economically valuable personality traits. *Proceedings of the National Academy of Sciences, 114*(25), 6527-6532. doi:10.1073/pnas.1609994114

Karabulut, A. T. (2016). Personality traits on entrepreneurial intention. *Procedia-Social and Behavioral Sciences, 229*, 12-21. doi: 10.1016/j.sbspro.2016.07.109

Karimi, P., Kloshani, M., & Bakhshizadeh, A. (2012). A comparative study on emotional intelligence and cognitive between successful and unsuccessful entrepreneurs. *Management Science Letters, 2*(6), 2071-2076.

Koul, A., Becchio, C., & Cavallo, A. (2018). Cross-validation approaches for replicability in psychology. *Frontiers in Psychology, 9*, 1117. doi:10.3389/fpsyg.2018.01117

Krueger, N. F., Reilly, M. D., & Carsrud, A. L. (2000). Competing models of entrepreneurial intentions. *Journal of Business Venturing, 15*(5-6), 411-432.

Lackéus, M. (2015). Entrepreneurship in Education. What, Why, When, How. Entrepreneurship360 Background Paper. Available at: http://www.oecd.org/cfe/leed/BGP_Entrepreneurship-in- Education.pdf

Leutner, F., Ahmetoglu, G., Akhtar, R., & Chamorro-Premuzic, T. (2014). The relationship between the entrepreneurial personality and the Big Five personality traits. *Personality and Individual Differences*, 63, 58–63.doi: 10.1016/j.paid.2014.01.042

Liñán, F., & Fayolle, A. (2015). A systematic literature review on entrepreneurial intentions: Citation, thematic analyses, and research agenda. *International Entrepreneurship and Management Journal, 11*(4), 907-933. doi: 10.1007/s11365-015-0356-5

McCrae, R. R., & Costa Jr., P. T. (2008). The five-factor theory of personality. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), *Handbook of personality: theory and research* (3rd ed., pp. 159–181). NY: Guilford Press.

McMullen, J. S., & Shepherd, D. A. (2006). Entrepreneurial action and the role of uncertainty in the theory of the entrepreneur. *Academy of Management Review, 31*(1), 132–152.

Miguel-Tobal, J. J., & Casado, M. I. (1992). Solución de problemas personales: elaboración y desarrollo del "Inventario de Solución y Afrontamiento de Problemas-ISAP [Solution of personal problems: development and improvement of the Inventory of Solution and Coping of Problems-ISAP]. *Investigaciones Psicológicas*, *11*, 29-37.

Morales-Vives, F., Vigil-Colet, A., Lorenzo-Seva, U., & Ruiz-Pamies, M. (2014). How social desirability and acquiescence affects the age–personality relationship. *Personality and Individual Differences*, *60*, S16. doi: 10.1016/j.paid.2013.07.370

Obschonka, M., Schmitt-Rodermund, E., Silbereisen, R. K., Gosling, S. D., & Potter, J. (2013).The regional distribution and correlates of an entrepreneurship-prone personality profile in the U.S., Germany, and the UK: a socioecological perspective. *Journal of Personality and Social Psychology*, *105*, 104 – 122. doi: 10.1037/a0032275.

Obschonka, M., Schmitt-Rodermund, E., & Terraciano, A. (2014). Personality and the gender gap: a multi-nation study. *PloS One*, *9*(8), e103805. doi: 10.1371/journal.pone.0103805

Obschonka, M., Silbereisen, R. K., Cantner, U., & Goethner, M. (2015). Entrepreneurial self-identity: predictors and effects within the theory of planned behavior framework.

Journal of Business and Psychology, 30(4), 773-794. doi: 10.1007/s10869-014-9385-2

Obschonka, M., & Stuetzer, M. (2017). Integrating psychological approaches to entrepreneurship: the Entrepreneurial Personality System (EPS). *Small Business Economics, 49*(1), 203-231. doi: 10.1007/s11187-016-9821-y.

Owoseni, O. O. (2014). The influence of some personality factors on entrepreneurial intentions. *International Journal of Business and Social Science, 5*(1). 278-284.

Pillis, E., & Reardon, K. K. (2007). The influence of personality traits and persuasive messages on entrepreneurial intention: A cross-cultural comparison. *Career Development International, 12*(4), 382–396.

Pretorius, M. (2009). Defining business decline, failure and turnaround: A content analysis. *The Southern African Journal of Entrepreneurship and Small Business Management, 2*(1), 1-16.

Rauch, A., & Frese, M. (2000). Psychological approaches to entrepreneurial success. A general model and an overview of findings. In C.L. Cooper & I.T. Robertson (Eds.), International Review of Industrial and Organizational Psychology (pp. 101-142). Chichester: Wiley.

Rauch, A., & Frese, M. (2007). Let's put the person back into entrepreneurship research: A meta-analysis on the relationship between business owners'personality traits, business creation, and success. European Journal of Work and Organizational Psychology, 16, 353–385. doi.org/10.1080/13594320701595438

Santos, F. J., Roomi, M. A., & Liñán, F. (2016). About gender differences and the social environment in the development of entrepreneurial intentions. *Journal of Small Business Management*, *54*(1), 49-66. doi: 10.1111/jsbm.12129

Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. Academy of Management Journal, 25, 217–226. doi.org/10.5465/amr.2000.2791611

Weisberg, Y. J., DeYoung, C. G., & Hirsh, J. B. (2011). Gender differences in personality across the ten aspects of the Big Five. *Frontiers in Psychology*, *2*, 178.

Zhao, H., & Seibert, S. E. (2006). The big five personality dimensions and entrepreneurial status: A meta-analytical review. *Journal of applied psychology*, *91*(2), 259.doi: 0.1037/0021-9010.91.2.259

Zhao, H., Seibert, S. E., & Lumpkin, G. T. (2010). The relationship of personality to entrepreneurial intentions and performance: A meta-analytic review. *Journal of Management*, *36*, 381–404. doi: 10.1177/0149206309335187

Appendices

Table 1
Means and standard deviations for the variables and the intergroup differences

	University students		Entrepreneurs				
	Mean	*SD*	*Mean*	*SD*	*F(1,335)*	*p*	*Cohen's d*
Age	22.17	4.68	42.36	7.68	807.40	.000	3.17
Self-confidence/insecurity	30.17	7.60	35.43	7.29	29.87	.000	0.71
Reflectivity-impulsivity	17.63	3.48	18.97	3.42	9.31	.002	0.39
Resolution strategies	20.74	4.44	22.13	4.11	6.31	.012	0.32
Total ISAP	68.55	11.72	76.50	12.17	27.43	.000	0.67
Emotional attention	27.35	6.98	25.86	7.25	2.76	.096	0.21
Emotional clarity	27.06	6.64	29.35	5.08	8.15	.005	0.39
Emotional repair	29.06	6.17	30.61	5.12	4.27	.040	0.27
Ambiguity tolerance	42.22	8.41	45.13	8.52	7.22	.008	0.34
Neuroticism	21.59	8.46	17.18	8.57	16.92	.000	0.52
Extroversion	33.46	7.64	32.02	6.99	2.28	.132	0.20
Openness	32.83	7.53	32.35	6.93	0.27	.606	0.07
Agreeableness	28.71	6.64	28.90	6.82	0.05	.825	0.03
Conscientiousness	32.99	6.42	33.60	6.10	0.59	.444	0.10

Table 2

Results of GLMM analysis between groups, controlling for participant sex and age

	F(1,332)		
	Age	Sex	Group
Self-confidence/insecurity	16.04 ***	8.02***	1.06
Reflectivity-impulsivity	6.28**	0.34	0.19
Resolution strategies	0.55	0.04	0.36
Total ISAP	12.05**	2.70	0.30
Emotional attention	4.23*	1.69	1.18
Emotional clarity	5.60*	0.04	0.34
Emotional repair	2.56	0.18	0.17
Ambiguity tolerance	1.72	8.53**	0.07
Neuroticism	15.45***	0.87	1.65
Extroversion	0.03	0.07	0.37
Openness	0.17	1.64	0.16
Agreeableness	3.44	17.61***	0.28
Conscientiousness	6.94**	0.00	3.22

***p<.001; **p<.01; *p<.05

Table 3

Classification table. High and low entrepreneurial intention

		Entrepreneurial intention Predicted	
		Low	High
Entrepreneurial intention Real	Low	64.2%	35.8%
	High	27.9%	72.1%
Cross-validation	Low	63.5%	36.5%
	High	29.3%	70.7%

Figure 1

Profile of the participants with high and low entrepreneurial intention correctly classified by the model and entrepreneur (raw scores)