# The entrepreneurial profile of university students: a predictive model[1]

# Perfil emprendedor de estudiantes universitarios: un modelo predictivo

DOI: 10.4438/1988-592X-RE-2021-392-477

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**Abstract**

Introduction: Entrepreneurship is recognized by the European Union as one of the eight key competences for lifelong learning. Research on entrepreneurship started in the field of economics, although in recent decades the individual skills and attitudes it involves have become more important and there has been more interest in teaching and learning about the subject. Although some research has found a positive relationship between Entrepreneurship Education (EE) and entrepreneurial behavior, the relationship is not clear and the results are contradictory. The level of entrepreneurial initiative shown prior to any EE seems to be the variable that best explains the different results. Objective: The aim of this paper is to determine which individual differences can best identify those university students with a strong entrepreneurial attitude. Method: The sample was made up of 514 students from six Spanish universities, who were divided into two groups corresponding to individuals with high and low entrepreneurial intention. A step-by-step logistic regression analysis was performed

[1] Acknowledgements: The authors are thankful to the Vice-rectorate of Quality of the Complutense University of Madrid (Spain) for the financial support through the 2016-2017 call for Proyectos Innova Docencia.


Received: 01-07-2020 Accepted: 04-12-2020

resulting in a model in which the variables of emotional repair, low neuroticism and agreeableness were significant. Results: This model allows us to correctly forecast 62.20% of cases. Discussion: These findings are important for work on models that allow us to identify the profiles of potential entrepreneurs. The results are interesting in terms of the relationship between entrepreneurial education and intention and the investigation of whether an entrepreneurial intention profile, such as the one found in this research, could improve EE results and facilitate the transition from intention to action in entrepreneurial behavior.

*Key words*: entrepreneurship education, personality traits, entrepreneurial intention, attitudes, emotional intelligence, college students.

**Resumen**

Introducción: el emprendimiento es reconocido por la Unión Europea como una de las ocho competencias clave para el aprendizaje permanente. La investigación sobre emprendimiento comenzó en el ámbito económico, aunque en las últimas décadas ha aumentado la importancia de las habilidades y actitudes individuales relacionadas con él, así como el interés por su enseñanza y aprendizaje. Aunque algunas investigaciones sugieren resultados positivos entre la Educación para el Emprendimiento (EE) y el comportamiento emprendedor, la relación no está clara y los resultados son contradictorios, siendo el nivel de iniciativa emprendedora previa a la EE la variable que parece explicar las diferencias en los resultados. Objetivo: Este trabajo tiene como objetivo encontrar qué diferencias individuales identifican mejor a los estudiantes universitarios que tienen una alta actitud emprendedora. Método: La muestra estuvo compuesta por 514 estudiantes de seis universidades españolas, la cual se dividió en dos grupos correspondientes a los individuos con alta y baja iniciativa emprendedora. Se realizó un análisis de regresión logística paso a paso que muestra un modelo en el que las variables de reparación emocional, bajo neuroticismo y amabilidad fueron significativas para predecir una alta iniciativa emprendedora. Resultados: Este modelo permite pronosticar correctamente el 62,20% de los casos de alta iniciativa emprendedora. Discusión: Los resultados son relevantes para trabajar en modelos que permitan la identificación de perfiles de potenciales emprendedores, abordar la relación entre la educación y la intención emprendedora, e investigar si un perfil de alta intención emprendedora, como el que se encuentra en esta investigación, podría mejorar los resultados de la EE y facilitar el paso de la intención a la acción en el comportamiento emprendedor.

*Palabras clave:* educación para el emprendimiento, características individuales, iniciativa emprendedora, actitudes, inteligencia emocional, enseñanza superior.

## Introduction

Entrepreneurial intention is recognized by the European Union as one of the eight key competences for lifelong learning and one of the key policy objectives for the EU (European Parliament and the Council, 2006). The Entrepreneurship Action Plan 2020 and the New Skills Agenda for Europe (EP, 2019) highlight the need to promote Entrepreneurship Education (EE).

According to Leutner et al. (2014), we can describe entrepreneurship as behavior related to value creation by taking advantage of opportunities in an innovative and new way. Since behavior reflects individual differences, it can be assumed that these differences influence entrepreneurial initiative and behavior, regardless of whether it is in an employee, self-employed worker, or student (Ahmetoglu, Leutner & Chamorro-Premuzic, 2011).

In this context, EE becomes of special interest as an instrument to promote entrepreneurial intention throughout the entire educational cycle. EE has been included as a mission in the education sector and especially in universities. The activities carried out by universities are grouped into three missions: teaching, research, and contribution to economic development through the transfer of knowledge. These three missions involve several conceptual foundations: cooperation between the university and public and private agents, social and community commitment to solving problems, and the development of entrepreneurial universities (Vera-Salazar, Amaru-Galvis, & González-Zabala, 2013).

Although there is abundant research on the implementation of EE programs (Barba-Sánchez & Atienza-Sauquillo, 2018; Liñán, Rodríguez-Cohard, & Rueda-Cantuche, 2011; Nabi et al., 2017), it is not yet clear what skills should be taught (Bacigalupo et al., 2016). There is also no consensus on whether and when these skills should be taught to have a greater impact on business behavior (Martin, McNally & Kay, 2013).

While some studies find that EE programs have a positive effect by increasing entrepreneurial intention and promoting skills relevant to entrepreneurial behavior (Huber, Sloof, & van Praag, 2014; Fayolle, & Gailly, 2015), other studies find little or no effect on the results (Fairlie, Karlan, & Zinman, 2015; Lyons & Zhang, 2018; Oosterbeek, van Praag, & Ijsselstein, 2010; von Graevenitz et al., 2010). Some authors even believe that entrepreneurship cannot be taught and that trying to teach it entails


Received: 01-07-2020 Accepted: 04-12-2020

an unnecessary use of public resources (Shane, 2009; Shane, Nicolaou, Cherkas, & Spektor, 2010).

In a meta-analysis, Bae et al. (2014) analyzed 73 studies with a sample of 37,285 individuals and found a low correlation between EE and entrepreneurial intention. These results highlight the importance of considering the influence of other variables that can affect the effectiveness of EE.

More importantly, there is little evidence on how such programs impact on different types of individuals and which components of the programs are most likely to affect the results (Lyons & Zhang, 2018). The possibility of inverse causality has been pointed out (Bae et al., 2014), that is, that students who enroll in EE programs have a prior attitude and intention, wish to be entrepreneurs, and so they will take advantage of these EE programs. In other words, the entrepreneurship results evaluated after EE programs are not derived from such training but from a previous predisposition and voluntary choice (self-selection bias) (Liñán, 2004).

The possibility of reverse causality has also been highlighted in other studies that indicate that considering the level of entrepreneurial intention before EE (ex-ante) will help us to understand more clearly the relationship between the two variables (Oosterbeek et al., 2010). Von Graevenitz et al. (2010) found that there is a high correlation between entrepreneurship beliefs and attitudes before EE training, and that changes in entrepreneurial intention due to EE are less likely if intention and attitudes are strong and consistent (whether positive or negative). Likewise, other authors have pointed out that the success of EE depends more on personal factors related to the entrepreneurial dimension of personal identity, so the implementation of these programs must include these individual variables (Bernal & Cárdenas, 2017).

These findings seem to indicate that students do not change their entrepreneurial intention due to EE programs, but rather the impact of these programs is due to a previous level of entrepreneurial intention, attitudes, and capacities, indicating that this predisposition to entrepreneurial intention may play a role in selecting the individuals for whom EE programs will be most effective (Bae et al., 2014; Lyons & Zhang, 2018).

To contribute to this research area, we believe that it is important to investigate which individual variables are associated with a high entrepreneurial intention profile. This will allow for the identification of the people who can best benefit from EE and the definition of the


Received: 01-07-2020 Accepted: 04-12-2020

appropriate programs according to the objectives. These objectives can be to develop attitudes about entrepreneurship, more suitable for primary, secondary or vocational and professional education, or provide specific entrepreneurship knowledge and skills, more focused on graduate and postgraduate teaching and aimed at those who have shown an entrepreneurial attitude (Lackéus, 2015).

## The entrepreneurial profile

According to the European Framework, the *Sense of initiative and entrepreneurship* competence "refers to the ability of an individual to convert ideas into actions. It involves creativity, innovation and risk taking, as well as the ability to plan and manage projects to achieve objectives" (Bacigalupo, 2016, pp. 2; EU, 2019).

There is a large body of literature that has studied the skills, attitudes, and traits that influence entrepreneurial initiative, among which the studies on entrepreneurial personality stand out. In the review by Omorede, Thorgren and Wincent (2015), 39% of the research was in this field, distinguishing two main approaches: a classic approach focusing on the study of general traits such as the Big Five (Brandstätter, 2011; Zhao, Seibert, & Lumpkin, 2010), and another focusing on more specific traits (Rauch & Frese, 2007a, 2007b; Muñiz et al., 2014). The two approaches are not exclusive and in fact the current theoretical models include both models of entrepreneurial personality (Rauch & Frese, 2007a; Suárez-Álvarez & Pedrosa, 2016).

Research indicates that higher values in extraversion, conscientiousness, and openness and lower values in agreeableness and neuroticism are related to entrepreneurship (Obschonka et al., 2013; Zhao et al., 2010). This entrepreneurial Big Five profile predicts entrepreneurial behavior and underlying intentions, attitudes, control beliefs, entrepreneurial alertness, self-identity, skills, and social capital (Obschonka & Stuetzer, 2017; Stuetzer, et al., 2016).

In addition to the Big Five model, other personality traits have also been studied in relation to entrepreneurial behavior. These include tolerance of ambiguity (Gurel, Altinay, & Daniele, 2010; Gürol & Atsan, 2006), which is defined as the tendency to perceive ambiguous situations as desirable. Since risk, uncertainty, and constant decision-making under uncertainty


Received: 01-07-2020 Accepted: 04-12-2020

are part of any entrepreneurial activity, entrepreneurship has been linked to the ability to handle ambiguous situations (McMullen & Shepherd, 2006). Other individual variables that have also been found important in the development of intention and entrepreneurial behavior have been personal autonomy, personal initiative, creativity and cooperative spirit, which seem to indicate that individuals with a more successful personal identity have better entrepreneurial conditions (Bernal 2014; Bernal & Cárdenas, 2014).

The literature on entrepreneurship also highlights the role that emotions play in the recognition of opportunities (Baron, 2008; Foo, 2011; Wincent & Örtqvist 2011). Emotional intelligence is defined as the ability to understand and manage one's own emotions and those of others (Chamorro-Premuzic, 2007). People with higher scores in emotional intelligence are more creative, proactive and show a higher level of entrepreneurial attitude and intention than other people with lower scores (Cross & Travaglione, 2003; Zampetakis et al., 2009).

The main goal of our study is to verify which psychological variables, i.e., traits (Big Five) and specific traits (ambiguity tolerance and emotional intelligence), are most relevant in university students with a high entrepreneurial intention. Two hypotheses are tested: (1) University students who have high entrepreneurial intentions will be characterized by a psychological profile with high scores in extroversion, openness, conscientiousness, emotional intelligence and ambiguity tolerance and lower scores in neuroticism; (2) This profile will allow the development of a predictive model that adequately classifies university students with high and low entrepreneurial intentions.

## Methods

The methodological design is quantitative, not experimental, since it does not intentionally manipulate the variables (Bisquerra, 2012). The study design was cross-transversal and correlational type.


Received: 01-07-2020 Accepted: 04-12-2020

## Sample

The sample was formed by students from six Spanish universities. The sampling method used was of the incidental and convenience type, since participation in the study was anonymous and voluntary.

The initial sample consists of 994 volunteer students recruited from Spanish universities, specifically the Complutense University of Madrid (UCM, 53%), the National Distance Education University (UNED, 11.5%), Carlos III University of Madrid (UC3M, 11%), the University of Castilla-La Mancha (UCLM, 9%), the University of Alcalá (UAH, 8%) and the University Rey Juan Carlos (URJC, 7.5%), all aged between 17 and 52 ($M$ = 21.87, $SD$ = 4.52). Data were provided from several disciplines, such as Humanities (9.8%), Social Sciences (40.0%), Experimental Sciences (4.5%), and Health Sciences (45.7%). Females were predominant (70.8%) in the sample. Most participants, 75.1%, were only studying and 24.9% were both studying and working. Most participants were from Spain (92.4%), although there were also participants from other European countries (3.1%), Latin America (2.4%), Asia and Oceania (1.8%), and Africa (0.3%).

To determine the students with high and low entrepreneurship, the original sample of 949 volunteer university students was divided into two groups: a) those who obtained a score less than or equal to 5.0 (25th percentile) (n1 = 260) and b) students with a clear entrepreneurship intention (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, so the final sample consisted of 514 university students (Table I).


Received: 01-07-2020 Accepted: 04-12-2020

**TABLE I.** Final sample

| | | Entrepreneurial intention | | Total (*n*) |
|---|---|---|---|---|
| | | Low (*n*) | High (*n*) | |
| Sex | Men | 67 | 84 | 151 |
| | Women | 193 | 170 | 363 |
| Do you have children? | No | 255 | 243 | 498 |
| | Yes | 5 | 11 | 16 |
| Discipline | Humanities | 23 | 34 | 57 |
| | Social Sciences | 109 | 120 | 229 |
| | Experimental Sciences | 11 | 8 | 19 |
| | Health Sciences | 117 | 92 | 209 |
| Do you have a job? | No | 211 | 164 | 354 |
| | Yes | 49 | 90 | 128 |
| Nationality | Spain | 253 | 224 | 427 |
| | Latin América | 3 | 13 | 14 |
| | Europe | 1 | 13 | 12 |
| | Asia - Oceania | 3 | 3 | 6 |
| | Africa | 0 | 1 | 1 |
| Total | | 260 | 254 | 514 |

## Instruments

*Entrepreneurial Intention (EI)*. This was evaluated with 4 items measured using a Likert scale (Espíritu & Sastre, 2007) that in one factor reflect the desire to create one's own company, the intention to do so, 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 entrepreneurial intention. The unique structural factor explains 83.54% of the variance and this instrument has high reliability (Cronbach's alpha=. 93).

*Personality*. To assess the participants' personality profile, we used the shorter version of the Revised NEO Personality Inventory (NEO-


Received: 01-07-2020 Accepted: 04-12-2020

PI-R) (Costa & McCrae, 1992). This version has 60 items (12 per domain) derived from the original 240 items. The five factor domains assessed using 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.

*Tolerance of Ambiguity*. The instrument used was MSTAT-II (Arquero & Maclain, 2010). Higher scores indicate greater ambiguity tolerance. For our sample, we obtained an alpha of.86.

*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 are aware of 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.

## Procedure

Participants completed a paper and pencil questionnaire in one session that included the instruments described above (measures of EI, personality, emotional intelligence and ambiguity tolerance) and their socio-demographic characteristics, such as sex, age, nationality, university degree they were studied and university. The completion of the questionnaire took 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 for their "consent to participate".

To guarantee the quality of the data collection process, the researcher was present in the corresponding room throughout the session. At the beginning of the session, the questionnaire was distributed among the participants, and then the researcher explained the conditions of the study and the instructions necessary to respond. Once the participant finished, they handed their questionnaire to the researcher and left the room.


Received: 01-07-2020 Accepted: 04-12-2020

### Statistical Analysis

Prior to the regression analysis, descriptive statistics were calculated for each variable and ANOVA's were performed for the comparison of mean between the groups. The relationship between sex and group was evaluated using the chi-square statistic. Effect size was calculated as Cohen's d statistic. All analyzes were performed using SPSS 22.0.

## Results

Table II shows the mean and standard deviations of the variables considered in this study, for each of the groups established according to their degree of entrepreneurial intention, as well as the result of the ANOVA analysis. There was no significantly different distribution of sex between the two groups ($\chi^2$ = 2.57, p =.109) (low entrepreneurial initiative group: 25.7% male and 74.3% female; high entrepreneurial initiative group: 32.3% male and 67.7% female). No differences between groups were found in relation to age.

The group with the higher entrepreneurial intention obtained higher scores in extroversion, openness, conscientiousness, emotional clarity, emotional repair and ambiguity tolerance and lower scores in neuroticism. These results confirm hypothesis 1.

**TABLE II.** Descriptive statistics, ANOVA results and size effect among high and low entrepreneurial initiative groups.

| | Entrepreneurial intention | | | | | | |
|---|---|---|---|---|---|---|---|
| | Low | | High | | | | |
| | Mean | SD | Mean | SD | *F* | *p* | *Cohen's d* |
| Age | 22.14 | 5.24 | 22.31 | 4.84 | 0.14 | .712 | .03 |
| Emotional Attention | 26.46 | 7.34 | 27.30 | 7.10 | 1.66 | .198 | .12 |
| Emotional Clarity | 24.61 | 6.84 | 27.12 | 6.77 | 16.47 | .000 | .37 |
| Emotional Repair | 24.77 | 6.36 | 29.13 | 6.08 | 58.90 | .000 | .70 |
| Tolerance of ambiguity | 38.44 | 8.02 | 42.36 | 8.38 | 27.72 | .000 | .48 |


Received: 01-07-2020 Accepted: 04-12-2020

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Neuroticism | 23.41 | 8.56 | 21.28 | 8.48 | 7.54 | .006 | .25 |
| Extroversion | 29.27 | 8.59 | 33.82 | 7.41 | 38.37 | .000 | .57 |
| Openness | 31.24 | 7.29 | 32.88 | 7.55 | 5.92 | .015 | .22 |
| Agreeableness | 27.73 | 6.74 | 28.81 | 6.75 | 3.11 | .078 | .16 |
| Conscientiousness | 30.60 | 7.26 | 33.06 | 6.49 | 15.24 | .000 | .36 |

Table III shows the results of the logistic regression analysis. Three steps were needed to reach the best prediction model. The best model included neuroticism, agreeableness and emotional repair as significant predictors of entrepreneurial initiative. Emotional stability (low neuroticism) and emotional repair are the most important psychological variables in the model, since with just using these it is possible to predict entrepreneurial initiative with a 60.00% probability of success. The introduction of agreeableness only adds a 2.20% probability of success in the prediction.

**TABLE III.** Results of stepwise logistic regression to predict entrepreneurial initiative.

| | | B | S.E. | Wald | Sig. | Exp (B) | 95% C.I. EXP(B) | | Δχ2 | Sig. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Lower | Upper | | |
| Step 1 | Neuroticism | -.01 | .004 | 6.32 | .012 | .99 | .98 | 1.00 | 6.90 | .009 |
| Step 2 | Neuroticism | -.04 | .008 | 25.94 | .000 | .96 | .94 | .97 | | |
| | Emotional Repair | .03 | .007 | 20.56 | .000 | 1.03 | 1.02 | 1.05 | 22.56 | .000 |
| Step 3 | Neuroticism | -.03 | .009 | 11.92 | .001 | .97 | .95 | .99 | | |
| | Agreeableness | -.03 | .013 | 6.53 | .011 | .97 | .94 | .99 | | |
| | Emotional Repair | .06 | .013 | 21.43 | .000 | 1.06 | 1.03 | 1.09 | 6.38 | .011 |

This model explains an adequate percentage of the variability between individuals with high and low entrepreneurial intention. The model based on these three predictors makes it possible to correctly forecast 62.20% of cases, this percentage being 63.10% for those who have no or little entrepreneurial intention, and 61.20% for those who show strong entrepreneurial intention. Higher entrepreneurial intention is related to lower neuroticism (or higher emotional stability), higher emotional

repair and, to a lesser degree, lower agreeableness. Hence, hypothesis 2 is supported.

## Conclusions

This study has focused on identifying which individual variables (psychological traits) are capable of differentiating between individuals showing higher and lower entrepreneurial initiative and presents a predictive model of entrepreneurial intention. This model shows that university students who have high entrepreneurial intentions will be characterized by a psychological profile with high scores in extroversion, openness, conscientiousness, emotional intelligence and ambiguity tolerance and lower scores in neuroticism.

In this model to predict entrepreneurial intention, emotional stability (low neuroticism) and emotional repair are the most important psychological variables, since just using these it is possible to predict entrepreneurial intention with a 60.00% probability of success. These variables are not only important for entrepreneurs, other studies indicate that the so-called mixed EI, which includes Conscientiousness, self-efficacy, self-rated performance, and Extraversion in addition to ability EI, Emotional Stability, and cognitive ability, is an important predictor of job performance in general (Joseph et al., 2015)

In relation to this profile, our findings coincide with most authors and results which indicate that emotional stability is positively related to performance, leadership and entrepreneurial intention (Rauch & Frese, 2007b; Zhao et al., 2010; Brandstätter, 2011). The idea of starting an entrepreneurial project involves making decisions constantly under ambiguity, so people most vulnerable to psychological stress and negative emotions, anxiety, worry or depression will feel less attracted by this and avoid it. In contrast, people who are low in neuroticism are less sensitive to negative comments and criticism and are more likely to deal with problems effectively. They have higher self-esteem and are more motivated to find situations in which they can assert their independence and control.

Our findings also show differences between groups in terms of extroversion. In the research in this area there is strong consensus that this variable is the most closely related to initiative and entrepreneurial


Received: 01-07-2020 Accepted: 04-12-2020

behavior (Antoncic et al., 2015; Brandstätter, 2011; Leutner et al., 2014; Zhao et al., 2010). People with high extroversion are active, assertive, optimistic and friendly, so they are more likely to be attracted to entrepreneurship as it is more motivating and inspiring for them than other occupations. The relationship between extroversion and entrepreneurship can be explained by the high level of social interaction involved in many tasks involved in starting a new company (relationships with partners, employees and clients) together with a proactive personality that can identify opportunities and transform them into action. Although we have also found higher extroversion scores in those participants with high entrepreneurial initiative, the importance of extroversion is reduced when other variables that can predict entrepreneurial attitude are also considered.

Some studies (Zhao et al., 2010) show that Conscientiousness is positively related to entrepreneurship behavior. Consciousness implies organization and planning, responsibility towards others, perseverance and orientation towards work goals and hard work, important factors in business behavior. In our study, significant differences in Consciousness between the two groups were also found and the relationship was also positive.

Openness implies curiosity, imagination, and creativity, the search for new ideas and innovation. It is considered a crucial factor for entrepreneurial intention since it plays an important role in recognizing entrepreneurial opportunity. Several authors have reported high correlations between Openness and entrepreneurial intention, performance and the creation and business success (Zhao et al., 2010; Antoncic, 2015; Rauch & Frese, 2007), as well as finding a lack of creativity to be the most significant barrier for the university community (Ruiz-Ruano, Casado & López, 2019). Our results are also consistent with these studies by finding that Openness is associated with a high entrepreneurial intention profile.

Agreeableness is negatively related to entrepreneurial intention (Brandstätter, 2011; Zhao et al., 2010; Antoncic et al, 2015). In addition, Agreeableness allows us to differentiate between individuals with very low and very high entrepreneurial intentions and is a predictor of that intention, although to a lesser extent than Neuroticism and Emotional Repair.

Differences between high and low entrepreneurial intent participants were also found in tolerance of ambiguity. From the beginning of

the research on entrepreneurial behavior, attention has been paid to this variable since risk and uncertainty are a common part of the entrepreneurial process. Our results are similar to those found in previous research, namely that there are significant and positive correlations between entrepreneurial intention and tolerance of ambiguity (McMullen & Shepherd, 2006; Pillis & Readorn, 2007), as well as differences between students with high and low entrepreneurial intention (Koh, 1996). It is one of the specific personality traits that has been studied most in relation to entrepreneurial behavior (Omorede et al., 2015).

Regarding Emotional intelligence, the results for emotional repair are similar to those seen in previous studies that highlight that this dimension is most closely related to entrepreneurial personality and self-efficacy (Mortan, Ripoll, & Carvalho, 2014; Muñiz et al., 2014). In addition, other studies have found that emotional intelligence improves predictive capacity and has a direct effect on entrepreneurial attitude (Fernández et al., 2015). It is therefore a very relevant factor in predicting the processes of entrepreneurial behavior (Ahmetoglu et al., 2011; Mortan, Ripoll, & Carvalho, 2014; Zampetakis et al., 2009; Zhao et al., 2010).

As for the other two dimensions of emotional intelligence, emotional attention and emotional clarity, the literature shows that those most strongly related to an entrepreneurship profile are clarity and emotional repair and there was no relationship with emotional attention (Rosa et al., 2011; Salvador, 2008; Muñiz et al, 2014). These results are confirmed in the present study.

In addition, the dimensions of emotional intelligence are malleable and open to development, therefore being susceptible to training and improvement through intervention programs (Arias, Bustinza & Djundubaev, 2016; Chandler, DeTienne, McKelvie, & Mumford, 2011; Suárez-Álvarez et al., 2016). Emotional Intelligence has received increasing attention in recent years with very interesting results in relation to its effects on entrepreneurship. In this sense, the research highlights the importance of including emotional intelligence in educational programs to promote entrepreneurial orientation and behavior among students (Pradhan & Nath, 2012).

We believe that these results have important practical implications. In recent years, interest in EE programs has increased significantly and several authors have argued that entrepreneurship education programs will be more effective for people with high levels of entrepreneurial


Received: 01-07-2020 Accepted: 04-12-2020

intention (Lyons & Zhang, 2018; Obschonka & Stuetzer, 2017), implying that EE needs to be improved and become much more focused on that target group (Bae et al., 2014). In addition, education programs focused on entrepreneurial attitudes and skills are more effective in education courses for people with low entrepreneurial intention and in primary and secondary school.

As for the limitations of this study, there is a need to increase the sample size to make it more heterogeneous (i.e., students from different cultural contexts). It is also important to incorporate a gender perspective in the analysis of entrepreneurship and the impact of training (Sullivan & Meek, 2012). Although the sample is of adequate size, it is somewhat out of adjustment with respect to the sociodemographic characteristics of the university population in Spain.

Another limitation comes from the transversal nature of our study. It would be useful to carry out longitudinal studies to identify the impact of these profiles on entrepreneurial intention. Although the model shows reasonable precision, it would be desirable to improve this, so future studies should evaluate the influence of other individual variables that have been considered relevant in terms of entrepreneurial behavior (e.g., cognitive styles) and incorporate social and economic variables (socio-economic context, financial capacity, family entrepreneurship background, etc.).

The evaluation of the entrepreneurial intention with items that only refer to the creation of a company could give false negatives, people who do not intend to create a company for profit but who want to take advantage of its opportunities to create value through social entrepreneurship projects (for-profit or non-profit activities that develop solutions to social, cultural and environmental problems) or develop their ideas through corporate entrepreneurship (intrapreneurs). It is necessary to develop instruments that allow evaluating entrepreneurial intention from a broader definition.

Future research could investigate whether a predictive profile of entrepreneurial intentions, such as the one in this research, could improve the results of entrepreneurship education and facilitate the transition from intention to action and entrepreneurial success.

Although this model allows predicting entrepreneurial intention with a probability of success of 60.00%, other studies are necessary to improve its predictive capacity. The model focuses on personality traits,

so future studies should also include other variables that have been identified as relevant and that are more related to the social dimension of the entrepreneurial phenomenon, such as the socio-economic, cultural context and the importance of ethnic, linguistic and even religious fragmentation (Álvarez & Urbano, 2013).

The heterogeneous effect of EE on different entrepreneurship profiles is an important consideration for educators, policy makers, vocational education, and program evaluators, as it allows more effective education and training entrepreneurship programs to be designed and better use of public and private resources to be made.

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Received: 01-07-2020 Accepted: 04-12-2020

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Received: 01-07-2020 Accepted: 04-12-2020